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REVIEW OF SECTORAL CLUSTERS, SECOND PHASE: LAND, DESERTIFICATION FORESTS AND BIODIVERSITY

Integrated approach to the planning and management of land resources

Report of the Secretary-General

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INTRODUCTION

1. This document reports on progress made in the implementation of the aims set out in chapter 10 of Agenda 21 1/ (Integrated approach to the planning and management of land resources) since the United Nations Conference on Environment and Development in June 1992, and presents a set of recommendations for action. The report was prepared by the Food and Agriculture Organization of the United Nations (FAO) as Task Manager for chapter 10 of Agenda 21, in consultation with the United Nations Secretariat, in accordance with arrangements agreed to by the Inter-Agency Committee on Sustainable Development at its fourth session. It is the result of consultations and exchange of information between designated focal points in 19 United Nations agencies, governmental officials, and a number of other institutions and individuals. A summary of its results and conclusions was presented to, and supported by, the FAO Council at its one hundred seventh session, in November 1994. Such a large number of issues are related to land that it has been impossible to do more than touch on some of the more relevant items in this short report.

2. The overall objective of chapter 10 is to "facilitate allocation of land to the uses that provide the greatest sustainable benefits and to promote the transition to a sustainable and integrated management of land resources". In doing this, environmental, social, and economic issues should be taken into consideration, and the rights of individuals and categories, such as indigenous people and women, are specifically mentioned. Much of the world's land is already settled and used for some purpose, and the aim is to move towards uses that provide greater benefits but which are sustainable in the long term, while protecting essential natural ecosystems and biodiversity values. Immediate objectives are stated as follows:

> "(a) To review and develop policies to support the best possible use of land and the sustainable management of land resources, by not later than 1996;
>
> "(b) To improve and strengthen planning, management and evaluation systems for land and land resources, by not later than 2000;
>
> "(c) To strengthen institutions and coordinating mechanisms for land and land resources, by not later than 1998;
>
> "(d) To create mechanisms to facilitate the active involvement and participation of all concerned in decision-making on land use and management, particularly communities and people at the local level, by not later than 1996."

I. GENERAL OVERVIEW

A. Objective

3. Land can be defined in a general sense as involving all attributes of the biosphere immediately above or below the terrestrial surface, including those of the near-surface climate, the soil and terrain forms, the surface hydrology (including shallow lakes, rivers, marshes, and swamps), near-surface layers and associated groundwater and hydrogeological reserve, the plant and animal populations, the human settlement pattern and physical results of past and present human activity.

4. Land, particularly the more productive classes of land, is finite in area, and human needs for land are many and varied. Thus the approach to land allocation that will satisfy those needs in the best and most equitable way must consider all land in relation to all needs. Land is required for the production of food, fibre, fuel and timber, for settlement, for recreation, for extraction of minerals, for water catchments, and for a wide range of ecological purposes. The way land is used affects all aspects of life, in particular standards of living and health and social and political stability. The many forms of environmental degradation, including deforestation, wind and water erosion, soil acidification and salinization, over-grazing, pollution, the extinction of plant and animal species, desertification, and even climate change and associated sea-level rise, are in a sense results of the inability of mankind to ensure sustainable land management.

5. While other chapters of Agenda 21 refer to land requirements and land-use planning in terms of individual aspects of the interface between land resources and human activities, the terms "land allocation", and "land management" in chapter 10 refer to the integration of all these separate needs and their interactions in an overall framework. In this sense the task is to facilitate the matching of land resources and land uses at every level in such a way that satisfaction of human needs and human rights is maximized on a sustainable basis. A balance must be struck between the need to increase production and raise living standards and the need to preserve the environment. The following major levels of planning and management need to be distinguished: global, regional, national, provincial or district, local, municipal or village, and household or farm.

6. It is essential that this exercise should cover both rural and urban land. There are reciprocal linkages between the city and the countryside. The former absorbs excess population from the rural areas and provides markets and services, and the latter provides food, raw materials, and recreation. The cities are also sources of pollution and are heavy users of certain natural resources. Peri-urban areas are frequently under great pressure to produce food and building materials, to provide recreational areas, and the necessary space for infrastructure of all kinds, and at the same time to absorb additional population, industry, and to dispose of pollution and other human and industrial waste. Cities and their associated infrastructure usually develop from settlements on land initially selected for its high agricultural potential, such as a fertile plain or valley, which is eventually built over and lost.

7. The programme of activities described in chapter 10 is intended to establish an overall conceptual and organizational framework for land resources allocation and management at each level. This framework should be made up of a number of modules, or procedures, which should begin with an inventory of land (and water) resources, a classification of land in terms of options for use, identification of needs, development of alternative action plans in collaboration with stakeholders, and implementation. Each of these stages should be further subdivided, and it is essential that action plans should cover all relevant social, economic and physical factors, including land-tenure issues, gender issues and others. Chapter 10 implies both physical planning, as usually carried out by the State or by local government organizations for the general good of the community, and land resources exploitation and management by individual land users. In both cases decisions need to be taken through a negotiation process with all those who are affected. It is therefore necessary to identify and reconcile the different sets of objectives of land users, communities, and governments, short-term needs such as food production, and long-term requirements such as the preservation of soil productive capacity, biological diversity, and global systems.

B. Land and people

8. When there were fewer people, there was no shortage of land for production, and environmental issues were minimal and localized. Under those conditions "land-use planning" was often not an important national or global issue, though at the community or tribal level, land resources management was often highly developed as a result of local population density. But human populations are now increasing with accelerating speed, already having doubled during the past 50 years to a present level of approximately 5.6 billion. At the same time, on average, food production grew faster than population because of better crop varieties, increased use of irrigation and mineral fertilizers, increased cropping intensities, and an expansion of the area under cultivation. There has also been a general rise in living standards all over the world.

9. A high price has been paid in terms of the environment for these results. It is very difficult to provide reliable data on the extent of land degradation world wide because of the difficulty of assessing and mapping the various forms of soil degradation and integrating the results. However, the Global Assessment of Soil Degradation (GLASOD) study 2/ indicates that 16 per cent of the total arable land surface has been damaged by recent human-induced soil degradation. The soils and natural vegetation of North Africa, the Middle East, Central Asia and parts of the rest of the world have become progressively more degraded and unproductive, in large part due to human activities over several thousand years. Until the first quarter of the present century, traditional land uses and production systems, which included terracing and various forms of grazing control, limited the rate at which land degradation was taking place. However, many of the most effective traditional labour-intensive conservation practices have now been abandoned, and widespread mechanization has caused a general shift to cultivation up and down the slope of the land. This, and the greatly increased area under irrigation, has led to a very marked increase in the rate of soil degradation over the past half century, to a point where, in many areas, it has reached catastrophic proportions. This very high rate continues in many

places where field crop production is mechanized and on steep lands newly cleared for cultivation. In many densely populated developing countries, soil degradation affects most of the land area, together with permanent overgrazing and deforestation. Tropical forests are being destroyed at the rate of about 15.4 million hectares per year. This in turn has resulted in accelerated destruction of plant, animal, and microbial habitats. It has been estimated that over the next 25 years more than a million species of plants and animals will become extinct. Water has become a scarce resource in many countries and regions, including many developed countries with temperate climates, and many water sources are now permanently polluted.

10. Degradation of the environment, particularly in cities, is having a serious effect on human health, the true extent of which is only just beginning to be realized. Pressure on productive resources is also responsible for poverty, hunger, and in many areas is the root cause of perennial social and political instability and migration. This migration is mainly a shift from rural to urban areas within developing countries, but also as continued high levels of migration flow between countries, and increasing interregional migration - particularly from developing countries with poor, fast growing populations, to developed countries. The number of refugees, asylum-seekers, and displaced persons, which has greatly increased in recent years, is also a factor to be taken into account (the number of refugees doubled from 8.5 to 19 million in less than 10 years, from 1985 to 1993).

11. The average figures for increased food production conceal the fact that populations have been rising much faster in some countries than in others. During the period 1988-1993 per capita food production actually declined in 99 countries, one third of which are in sub-Saharan Africa. For 1988/90 it is estimated that 20 per cent of the developing world's population was chronically undernourished. In many densely populated countries the average land area per head of population is now between 0.5 and 0.1 hectares only.

12. The human population is currently increasing by more than 85 million persons each year. It is expected to double again by the middle of the next century. More than 90 per cent of this increase is expected to take place in developing countries. The FAO study, entitled Agriculture: Towards 2010, which draws on all available information, shows that the per capita availability of arable land in developing countries is projected to nearly halve between the late 1980s and 2010, 3/ from 0.65 to about 0.4 ha. During the same period the share of land area required for human settlements is expected to increase from 2.8 per cent to 4 per cent of the total land area. The demand for recreational areas is likely to increase significantly. The forest area was estimated at 37 per cent of the total land area in 1990. The demand for forest products is estimated to increase from 238 million tons at the 1990 level to 440 million tons in 2010, and the pressure on existing forest lands will continue. Some of the deforested lands may have to be used for tree plantations, while others will become available for cultivation, but often at the cost of environmental degradation. On the other hand the demand to increase the size of protected areas is likely to increase as a result of growing environmental awareness. Most of the population increase will take place in the poorer countries with the least resources and where natural conditions are often least favourable. Unless a significantly more effective approach to land resources management is adopted

now, a possible scenario could include a large increase in poverty, hunger, social instability, war, greatly increased migration from resource-poor environments to more favourable ones, together with almost complete destruction of the remaining natural environment and possibly modifications to the world's climate which will cause social upheaval and political unrest on a vast scale. These are not things which may happen some time in the far distant future. They are already starting to happen, and the process may intensify exponentially over the next five or six decades unless appropriate action is taken.

13. In many industrialized countries the problems of land-use planning are of a different nature. There is often overproduction, with high productivity per unit of land, which is often associated with pollution and is maintained by a set of subsidies at both farm and export level, or a transformation of agricultural land into nature reserves or recreational facilities.

14. Countries in transition have some of the same difficulties, aggravated by organizational problems related to the transfer from public to private ownership.

15. The long-term relationship between humans and the land is represented by the institutions that make up a society's land tenure systems. These systems are the rules and practices which determine who has access to how much land and for what purposes. Where the existing land tenure system results in unfair rules to access, landlessness, or disregard for society's rules on usage is where aggravated ecological damage tends to be found. Landless farmers who invade forest reserves out of desperation, wildcat loggers who ignore regulations, and farmers with insecure land rights who make only the most rudimentary investments in land conservation are some of the most common examples.

C. A rational approach to land-use planning and land-resources management

16. Too often in the past land-use planning meant a top-down approach through which "planners" told ordinary people what they ought to do, and development programmes embodied the objectives of Governments rather than people. 4/ Failure to involve all stakeholders in the planning process has had three major consequences:

(a) Development programmes failed because they did not address the real objectives and needs of land users, who were therefore unenthusiastic about participation and seldom maintained the improvements created by the programme, which therefore had little or no permanent impact;

(b) Programmes were inappropriately designed because of lack of information on real constraints, social and institutional environments, and appropriate management structures;

(c) There was a failure to utilize the enthusiasm, knowledge, management ability, community values, and resources of those most directly involved.

17. At the level of the family or enterprise, land is a resource used to satisfy needs (such as food, money, and security). Land users rapidly respond to incentives which enable them to increase the level of those benefits, by raising output through increased investment in the land and higher levels of inputs and management. A prerequisite for this is that the land user must have security of tenure, so that efforts put into increasing productivity are protected. There are many different forms of land ownership and land tenure, many of them related to the development of rural societies over the centuries. The advantages and disadvantages of these different forms need to be taken into consideration and compared with national needs, laws, priorities, and equity considerations, as prerequisites for successful land-resources planning. Sale prices need to be such that labour and inputs are adequately rewarded (in other words, so that there is an incentive to produce). Information on better crop varieties, disease control etc. must be provided, together with physical infrastructure and markets. When the right conditions are in place, production will increase and conservation will be practised. Many social, legal, and economic factors are involved in creating the right conditions, and these in turn involve a host of different disciplines and institutions.

18. Put simply, the objective of the primary land user is to optimize continued output, of whatever kind. The objective of the community or nation coincides with this aim to the extent that national goals usually involve raising living standards, but national objectives also include broader aims, concerned with preservation of the environment and of natural resources such as water, soil, wildlife, and forests. It is therefore the task and aim of national Governments to create conditions and provide services which facilitate and encourage production but which also, through policies and legal instruments, allocate and control resource use in the interests of the community. Once again, different disciplines and institutions are involved, and many other sectors of the national economy impinge on or affect the land sector.

19. The functions of an integrated framework for sustainable land-resources planning are:

(a) To identify and clarify the set of conditions which enables and facilitates sustained utilization by land users;

(b) To put in place and maintain the necessary physical, informational, economic, and legal environment for this to take place;

(c) To develop at the national level the necessary structure to identify and support changing land-use options, protect the environment, make decisions relating to the use of land, and channel resources.

20. The necessary holistic integrated approach to the optimization of sustainable land use can be briefly defined as an operational programme covering a defined area of land and its population which methodically identifies human and environmental needs, identifies the potential and options for change and improvement, lists and evaluates all relevant physical, social, economic and policy factors, and develops, in consultation with all stakeholders, the series of actions necessary to permit and facilitate agreed changes.

21. The essential components of an integrated framework for sustainable land-use planning require that:

(a) Constraints are removed and incentives provided to ensure that desirable land uses are encouraged and are profitable; land users have legal title to their land; legal and tax systems do not result in disincentives to increased and sustainable land use; adequate market and physical infrastructure are available; the disadvantages and inequalities which particularly apply to women are remedied;

(b) People are involved and empowered to include identification of existing successful examples of methods which involve and empower groups of people and communities in the planning and management of land resources; factors and institutional structures which lead to successful management by groups and communities are identified; systems of joint management are propagated and encouraged; appropriate vertical linkages between decision-making forums at the local, district, national, and international levels are in place;

(c) The development of information and management systems to ensure that data needed for decision-making and monitoring are collected; appropriate systems of storage and dissemination are in place; information is available at no cost or at reasonable cost, and in an appropriate form, to all types of users; areas of importance by virtue of their environment features, natural resources, or history are located, surveyed and adequately maintained for the future;

(d) Institutions and the linkages between them are modified so that institutional responsibilities are clear and do not overlap; all concerned disciplines contribute appropriately to overall programme design and implementation; development is carried out jointly with the communities involved; required interfaces and communications links are established with groups responsible for all land-based activities, including industry, processing, marketing, banking, infrastructure development etc. to ensure the necessary inputs and support for the land resources sector but also to ensure that adequate provision is made for the safe absorption of waste products.

22. Sustainable development is not possible without the integration of land and water. Water is essential to human activities and to the functioning of all ecosystems. Water is required for human consumption, for biomass creation and for industrial production. It passes through the landscape and between the landscape and the atmosphere, and it is used and reused for many purposes. Water is important in terms of quantity and quality. Human activity affects both these factors and also the extent to which water causes damage and degradation through erosion, flooding, waterlogging and salinity. Any land-use plan must include the use of water.

23. Because of differences in climate and soil resources combined with efficient production systems, the potential for food production in developed countries often exceeds the consumptive requirements of their populations. Other countries with high economic growth rates are able to increase per capita food consumption partly by increasing their food imports. The countries which fare worst in this respect are those which suffer from war, political

disturbances, and economic stagnation. Therefore at the macro level an additional aim should be to create conditions of peace and stability which are favourable to economic growth.

II. REVIEW OF PROGRESS TOWARDS IMPLEMENTATION OF THE AIMS OF CHAPTER 10

A. Overall assessment

24. Overall progress has been variable in view of the target dates established in chapter 10. Awareness of the importance of negotiated land resources allocation and management and of the central role which such activities play in the development process has been growing. Some progress has been made in developing a relationship between governmental policy and land-user decision-making, in developing an integrated approach, in identifying key constraints, in providing all those concerned with relevant information, and in developing the means whereby they are able to participate in the development process. To encourage public involvement in decision-making, a number of countries have taken steps to make governmental information more freely available and have passed legislation which obliges the central government and local authorities to consult with the public in making policy decisions affecting land and the environment (for example, the New Zealand Coastal Policy Statement), and in formulating district development plans. Since UNCED, many countries have begun to address land-related issues as a whole, through the establishment of new ministries of the environment or departments of land-use planning and through the declaration of policies designed to provide a framework for operational programmes. Some examples of these initiatives are the Sistema Nacional de Desarrollo Sostenible (Costa Rica), the Programme national de gestion du territoire (Burkina Faso), and the Green Plan (Namibia).

25. At the international level Governments have adopted the International Convention to Combat Desertification in those Countries Experiencing Severe Drought and/or Desertification, particularly in Africa. Efforts have also been made among agencies to develop a strategic planning framework which will optimize results from a shrinking budget at the international level.

26. Institutions, agencies, individuals and a number of universities, some under the aegis of FAO's Inter-Departmental Working Groups on Environment and Sustainable Development and on Land-Use Planning, have been studying the relationships between policy, the social and economic environments and land use. FAO also produced several publications, The State of Food and Agriculture, 1993, 5/ Agriculture Towards 2010, 4/ and Guidelines for Land Use Planning, 6/ and together with other specialized agencies and institutions, it published numerous other publications and studies on one or other aspect of the subject.

27. In the areas of planning, management, and evaluation procedures, there has been technical progress over the past two years in concept development, development of databases and other computer-based systems, and in information products required for decision-making. Examples are the soil databases being developed by FAO and the International Soil Reference and Information Centre (ISRIC); land-use analysis concepts and database developed by FAO and the

International Institute for Aerospace Survey and Earth Sciences (ITC); a joint initiative of the United Nations Environment Programme (UNEP), FAO, the United Nations Centre for Human Settlements (Habitat), the United Nations Educational, Scientific and Cultural Organization (UNESCO) to develop international land-use and land-cover classifications; further development by FAO of more precise decision-support systems, and the expanded use of remote sensing to map and monitor various aspects of land, including the FAO AFRICOVER project and the IGBP-DIS land cover map of the world, planned for completion by 1997. As greater contact develops between specialists in this group of fields, systems such as Email are playing a significant role. However, though the methodology is being created, it is still only beginning to be introduced on a practical basis, particularly in developing countries.

28. In relation to the creation of mechanisms for the involvement and participation of communities and people at the local level, the activities of many non-governmental organizations and special interest groups should be mentioned. These are being increasingly recognized, consulted, and brought into the decision-making process. In a few developing countries self-help groups are being supported by non-governmental organizations. But a distinction needs to be made between this and statutory procedures designed to ensure that each individual having an interest in or likely to be affected by environmental factors or changes is empowered to participate in the discussion and decision-making process. Some examples of this are the Microbacias programme in Brazil, the Land Care programme in Australia, the Primary Environmental Care programme promoted by the OECD-DAC, the Integrated Catchment Management approach by the National Rivers Authority in the United Kingdom, the Farmer-centred Agricultural Resource Management Programme operating in Asia (FAO, UNDP, and UNIDO), the village land-management approach currently being implemented in several onchocerciasis-treated areas of West Africa, 7/ and the Community Management Areas in Burkina Faso. 8/ Mention may also be made of the Visual Planning System developed by UNCHS (Habitat) for both urban and rural application.

29. At the community level, locally agreed allocation arrangements may be the most effective method for protecting natural resources. Resources are often best protected by the local population's activities for allocating land to farming, grazing, and forests. Local agreement is often much more likely than national policies to decrease deforestation, because local communities benefit from the remaining woodlands and have a stake in protecting them. Similarly, reserving certain areas for herding through local agreements, such as the allocation of rangelands in Iran to nomadic tribes, may prevent encroachment on soils unsuitable for sustained production and maintain space for livestock. Local management and apportioning of scarce water resources can be equally effective; an example of this approach is the Keita Valley development project in Niger.

B. Major issues and challenges

30. World trade and its effects on prices for agricultural products have an important impact on incentives to develop land sustainably and on the rate of exploitation of raw materials and degradation of environments, in developing and industrial countries alike. Reduction of pollution and environmental

degradation are problems in all countries, especially in the vicinity of settlements and industrial areas. In all countries there is also a need to identify and conserve key areas of environmental importance and biological diversity. Many environmental issues affect more than one country - for example, the management of upper catchment areas of large rivers, the protection of coastal zones, the migration routes of birds and land animals, and deforestation, which affect global systems.

31. There is still a lack of sufficiently detailed information on land resources, at the national, and regional and global levels. The institutes of the Consultative Group on International Agricultural Research (CGIAR) need digitized climate, soil, and land-use information to support the extension of improved crop varieties to appropriate areas and to develop crop varieties adapted to marginal areas. The World Soil Map, published in 1987 at a scale of 1:5 million, is too small for district-level or village-level development work unless complemented by detailed information collected by national institutions. The same holds true for socio-economic information; methods of rapid rural appraisal provide the possibility of collecting at least some of the social and economic information for sustainable land resource development, but they have not been systematically applied.

32. There has been some strengthening of institutions in developing countries on an ad hoc basis through technical assistance programmes and by national institutions on their own, in both developing and industrialized countries. The major problem - lack of coordination or collaboration between sectors, disciplines, and institutions - has hardly been addressed, except informally, through the development of personal contacts. The problem of overlapping responsibilities is severe in many countries.

33. The involvement of rural populations, especially women, in the planning, formulation and implementation of agricultural policies and programmes remains marginal.

C. Developed countries

34. Population density in parts of many developed countries is among the highest in the world, and the standard of living and number of households is increasing rapidly. This has led to a massive expansion of urban areas and associated infrastructure and placed increasing pressure on land and water, energy and other natural resources. Agriculture has had an impact on the environment in a number of ways - high levels of fertilizers, herbicides and pesticides on arable land; excessive enrichment of some waters, particularly by nitrogen and phosphates as a result of intensive animal production; drainage of wetlands; and soil erosion on hilly areas due to the expansion of cereal production. In addition, past and present industrial use of land has left a heritage of pollution, much of which is highly toxic. All these factors have reduced the number of species, damaged or eliminated feeding areas and interfered with migration patterns, and modified natural environments. Consequently, there is now a rapidly increasing need to identify and protect areas of key environmental importance for the maintenance of natural plant and animal populations or unique ecosystems.

35. An increasing desire among developed countries since UNCED to implement sustainable development policies has encouraged some of these countries to create multicriteria knowledge-based information systems and to up-date and digitize land resource surveys carried out during the 1960s and 1970's in order to create computerized databases and Geographic Information System (GIS) systems. Remote sensing is also currently being used to create digitized land cover and, by inference, land-use databases and maps for many developed countries. Some progress has been achieved with the reduction of subsidies to unsustainable agricultural practices and in the provision of technical and financial assistance to those land users adopting preferable practices. For example a law introduced in Hungary in 1992 allows a 50 per cent reduction in the land tax if the farmer adopts sustainable technology. Price subsidies and mineral fertilizers and pesticides have also been eliminated.

36. Land evaluation techniques are still fairly rudimentary and qualitative, as is conflict resolution and decision-making. The most common approach is top-down zoning, together with by-laws and subsidies to control or influence use in each zone. These may limit the management rights of the landowner or land user, the stake which he or she holds in the land, and therefore the incentive to manage for the long term. The effect of taxation regimes current in some developed countries may also discourage improvements of a long-term nature. The functional relationship between governmental policy and land use is still little understood, and existing and well entrenched institutional structures are ill suited to a holistic approach to natural resource and environment planning. Many developed countries are currently interested in the land management planning tools being developed by a few institutions and agencies, but programmes to extend their use to all levels are not yet in place. 9/

37. Certain countries have developed systems of ecological zoning, which they are using as a basis for identification of threatened ecosystems and development of ecological modelling at various levels, from the regional and national to the level of individual natural habitats. Others have established ecological monitoring systems, but there is as yet little development of procedures and institutional structures to enable integrated and logical action on the basis of the results.

38. Some developed countries have produced successful models of consultative management and implementation groups at local levels, sometimes on a hydrological catchment basis, and sometimes at the level of an ecological system or biome.

39. A number of countries have developed national land-use policies and plans, such as the Japanese Comprehensive National Development Plan, which includes a National Land Use Plan, which itself covers Land Use Master Plans for individual prefectures. In terms of individual programmes, mention may be made of the set-aside programme developed by the European Community, the "Sodbuster", "Swampbuster", and Farm Bill laws in the United States, Land Care in Australia, and Ecological Infrastructure Planning in the Netherlands.

1. Key issues

40. The need for protection of the environment is an important issue in developed countries - in particular, the protection of key habitats and centres of biodiversity, together with control of pollution and rehabilitation of former industrial sites. Important issues are the widespread acidification of soils due to industrial pollution and the lowering of water tables and reduction of river flow due to high rates of extraction.

41. Attention also needs to be drawn to the issue of population redistribution. This applies to depopulation of rural areas and also to absorption of an increasing flow of migrants who are a consequence of the difficulties that developing countries face in raising food production and living standards at a faster rate than population growth, when a significant proportion of their populations are still directly dependent on agriculture.

42. Unsustainable consumption patterns and the disposal of waste products of many kinds, some of them toxic, are increasingly important problems in these countries.

43. Because of the increasing density of population, paralleled by an enhanced appreciation of nature and the environment, of heritage values, and of the health hazards associated with certain kinds of land use, a need is arising for the general introduction of the concept of land-user covenants which embody a responsibility to the community and custodianship of the land by the user for future generations (see proposal 7 in sect. III below).

D. Developing countries

44. In developing countries the situation varies enormously as regards availability and application of information, development of procedures involving local communities in decision-making, and institutional development. Few countries have made progress in collecting land-use information and storing it in digitized form or in developing the necessary procedures or institutional framework for integrated and sustainable land resources management.

45. A number of Asian and some Latin American countries have carried out national land resource and land use surveys covering climate conditions, soils, land forms, rangeland, woodland, and forest resources and have developed land evaluation systems. They have also taken steps to develop institutional structures capable of formulating integrated plans and policies and to implement them in collaboration with land users. For example, in Colombia, municipalities play a decisive role in rural development through municipal technical assistance units; in Chile municipalities have entered into agreements with national rural and forest development institutions to implement education, extension, and investment programmes. These and other countries in Latin America have also transferred important functions to land-user associations, cooperatives, and other non-governmental organizations. Some countries have also prepared national Agenda 21 programmes which give an important priority to land-use planning.

46. Some of these countries possess a sufficiency of skilled technical personnel, though they face budget limitations in the development of land-use planning systems. What is most needed is an exchange of information with similar countries, technical workshops, and regional institutions that facilitate international contacts between the staff involved in all aspects of these programmes. An example of joint action by a group of such countries is the programme of ecological/economic zoning initiated by the Special Commission on the Environment of the eight-country Amazon Cooperation Treaty in 1994, in which Brazil has played a leading role, with FAO in a supporting capacity. Bolivia has recently completed an exemplary detailed zoning for its part of the Amazon region, with full participation of all stakeholders. It is now extending this approach to other ecological zones of the country.

47. A number of other countries, in Africa, Latin America, the Middle East and elsewhere, have carried out land resources surveys of various kinds in the past and possess paper maps which can be used for basic land development purposes. In many of these countries, the establishment of methods to capture and record original survey data in digitized form has begun.

48. At the other end of the scale are countries that have little quantified information on their natural resources and whose populations practice subsistence agriculture supplemented by remittances from members of the family who are in paid employment elsewhere. In these countries, since the population expands but land-use technologies do not change, degradation of the landscape is severe. Deforestation, over-grazing, and wind and water erosion are all but universal; poverty is the norm for a large proportion of the people; there are periodic food shortages and frequent social instability and armed strife. These countries are the most in need of technical and financial assistance.

49. Many developing countries have continued to receive technical assistance on natural resources assessment and development from multilateral and bilateral sources. Initially this was aimed at resource mapping, more recently at land evaluation and land-use planning. Technical assistance programmes have typically been of a short duration and have usually been narrow in scope, involving one or, at most, a narrow range of disciplines. Their chances of success have been limited by factors outside the control of the project, such as unwieldy, inequitable, or insecure tenure systems, economic factors, or bureaucratic structures. Some progress has been made over the years, such as the move from a project to a programme approach and the more holistic design of conservation programmes. A basic reason for lack of success has been failure to develop "development" as a discipline in itself, together with a holistic and integrated approach which combines the physical, social, economic, and policy aspects of natural resource use. This is the weakness that now needs to be addressed.

50. Little progress has been made in developing a relationship between governmental policy and land user decision-making. Few countries have an effective institutional structure for land resources development and conservation, and in some developing countries there is no effective institutional basis to support legal land tenure. In this respect an excellent initiative has been recently taken in the Dodoma region of the United Republic of Tanzania in which village and even plot boundaries were agreed through an

interactive process between local villagers and government survey staff. Land management in the Machakos district of Kenya and village-based land management in West Africa are also encouraging signs.

51. Land tenure reform can have a very positive effect in achieving the goals of Agenda 21. China, for example, has been issuing long-term secure leases to hillside land to those who are willing to plant trees. Pole wood sales are perfectly elastic in contemporary rural China, and those who can produce them are often earning more per hectare than grain farmers. Thus, for the first time in a millennium, more trees are being planted than cut. In addition, a change from social property and its related central planning to models based on private property have resulted in a great reduction in an overdependence on chemical fertilizers and pesticides and in water pollution from poor farming practices. Well thought out land tenure reforms can serve as a powerful tool in stimulating land users to choose sustainable practices that enhance their security of tenure while increasing earnings.

1. Key issues

52. In many developing countries the most important issue, in both the rural and the urban contexts, is the need to provide the occupier and user of a piece of land with a clear legal title to it. But while security of occupancy and use must be provided, some restrictions on how the land is used will invariably be necessary in the direct interests of the community and in the broader interest of conservation of the environment.

53. In many developing countries land-use planning systems and procedures are undeveloped and comparatively ineffective. There is often a severe shortage of trained and experienced staff in this field and severe budget limitations on procurement of equipment. Often there is a multiplicity of institutions involved, with overlapping responsibilities. Bureaucratic constraints to development of effective procedures and decision-making processes are sometimes considerable. In the past, in many of these countries effective traditional land resource management systems existed. Most have fallen out of use due to the introduction of new forms of government and because in some cases they were incompatible with present living standards and expectations. In some countries there remains a tradition of joint discussion and decision-making at the local level which might be utilized in the future.

54. It is often difficult to locate funding for the collection of the necessary information to be used for rural or urban land resource development or for paying for the development of the necessary technical tools and institutional improvement, partly because they are not perceived as producing an immediate impact. Until now land-use planning has not been developed as a tool for decision-making at the village or household level, and consequently extension services are often largely ineffective. Modern tools such as geographical information systems would, in principle, make data processing quicker, cheaper, more transparent and more objective. Once this is understood, funding may be easier to obtain. During the past two years there has been some progress in the digitization of information already contained in maps and reports, and subsequent processing for planning. In some countries there is need for

external assistance to fund "rescue operations" to save valuable data that were collected in the past but that are now being lost or destroyed.

55. There is need to develop public awareness and stimulate public debate on the importance of natural ecosystems and the range of animal and plant life which is threatened by continued expansion of human activities and consequent transformation of landscapes, depletion of water resources, and all forms of degradation and pollution.

E. Countries with economies in transition

56. These countries are currently in the process of transferring large State-owned enterprises to various forms of private ownership, which include partnerships, cooperatives, and private enterprises. Such a huge task involves questions of equity, and, in some cases compensation, land surveys, and legislation. In most cases the two latter activities lag far behind, which may cause serious problems.

57. Many of these countries are suffering severe problems of environmental degradation and pollution which, in some cases, impinge on global systems. Considerable time and funding will be required to correct the practice of not accounting for all costs at the enterprise level. Basic resource data are often available, as are the necessary skills. But they are dispersed, and at present specialist staff and institutions are often demoralized and disorganized. Basic institutional structures exist, except for those needed for interaction with the new majority of land users.

58. There is growing awareness of the problem of environmental degradation, and much of the information necessary for planning more sustainable land and water resource use exists, together with the necessary skills. One example is the new Soil Information and Monitoring System, in Hungary. It covers 1,400 observation points - 1,000 on agricultural land, 200 in forests, and 200 in areas threatened by environmental degradation.

1. Key issues

59. Several of these countries have pressing problems relating to food production and living standards and are short of funds for implementation of projects aiming at the preservation and improvement of resources. There are also bureaucratic problems, problems of overlapping responsibilities, and problems stemming from single-sector approaches.

60. There is urgent need to update cadastral maps and land registration systems and to address questions of equity, land reform, and security of land tenure. The current transition period provides a window of opportunity for enlightened land-use planning to match land resources with most suitable uses.

61. A particular problem is the need to decontaminate and rehabilitate industrial sites and lands that were formerly under military control and that have become degraded or polluted by toxic substances.

62. Two types of assistance are required. One is funding, for programmes and equipment. The other is provision of a structure for consultation and exchange of information between these countries and with other countries and international institutions. Frequently competent professional staff know what has to be done and what the priorities are but are hindered by bureaucrats and lower-level officials, in many cases afraid to take responsibility. If it can be shown that proposals have been approved internationally, the problem is often reduced.

F. Major groups and non-governmental organizations

63. It is difficult to identify progress by the major groups, as defined in Agenda 21. This may be because few land development or natural resource management programmes are specifically oriented towards women, children or young people, indigenous people, or workers, except for the indigenous groups covered by the ecological/economic zoning being carried out under the Amazon Cooperation Treaty.

64. Increasing responsibility has been given to indigenous people and tribes in the planning and management of natural resources. This has facilitated the implementation by national Governments of development programmes and hastened their progress towards decentralization and the implementation of UNCED recommendations, especially in relation to chapter 10.

65. Non-governmental organizations can be divided into those representing the interests of groups, such as farmers and planners (an example is the International Network of Green Planners), and those providing technical assistance, mainly at the community level and mainly in developing countries. Non-governmental organizations are providing valuable assistance to land users at the village, watershed, or district levels. They tend to represent the interests of the individual or local community, and it is not always realized that such interests are often legitimately different from those of the country as a whole, and therefore of the Government.

66. The international scientific community is closely involved in aspects of methodology development and environmental monitoring, and land users, the business community, and local authorities are bound to benefit to the extent that progress is being made in this field.

1. Key issues

67. In many countries rural communities have suffered because of a tendency for rural areas to become depopulated. This has often resulted in cultural deprivation, lower standards of service and infrastructure, and failure to maintain the productivity of land. Examples of the latter are the neglect of terraces or drainage systems that ensured the sustainability of cultivated land and the breakdown of management systems of, for example, wetlands or forests. The ILO has drawn attention to the social implications of land-use management practices, including the concept of "sustainable livelihoods".

68. In many countries women have traditionally been environmental resource managers. This role has often intensified as men shift their efforts towards cash-earning activities elsewhere and as more men migrate from rural to urban areas. Women farmers grow most of the food in some regions. Women are often the caretakers and harvesters of food, fuel, and other products. The threats to the environmental resources base - degradation of agricultural and grazing land, deforestation, and increased scarcity of firewood, the advance of desertification - are all contributing to the pauperization of already poor women. To this are added the negative effects of structural adjustment, which are often felt disproportionately by the poor, the "invisibility" of women to development planners, and the many forms of societal discrimination against women. Some development projects, by neglecting to determine the gender-differentiated roles of men and women, further undermine the status of women. Women need to have access to training in sustainable agricultural methods and techniques. It is particularly important to note the disadvantage that women often face in their ability to own land, inherit it, or obtain credit on the basis of it.

69. Agenda 21 calls for the economic role of women to be taken into account; for both men and women to be provided with the information necessary for decision-making on land-use planning and management; and for enhancing local management capability, particularly that of women. Disappointing progress has been made in providing such rights and services since UNCED. The Informal Round Table of Experts on Rural Women, Population and Environment in South-East Asia, held in February 1994 and organized by the FAO Regional Office for Asia and the Pacific, is an example of what can be done.

70. There is need to develop further a partnership relationship between Governments and non-governmental organizations which would be complementary in terms of strengths and weaknesses. Since UNCED, a number of active non-governmental organization networks have emerged. They provide potential contact points between the non-governmental organization community and international organizations. Some United Nations agencies have a strong tradition of collaboration with non-governmental organizations. FAO and IFAD have created cooperation programmes which are a source of funding for non-governmental organizations.

71. More could be achieved through the involvement of educational institutions of all kinds in the development of sustainable land management practices at all levels and in establishing a wider appreciation of land and environment-related issues.

G. Finance and technological capacity

1. Finance

72. Specific financial and policy measures which have been shown to be successful in promoting higher sustainable production include the following:

(a) Support to the development of community-level land-use planning and management schemes;

(b) Tapping the enormous potential in the ability of local groups to plan and manage their own resources, if permitted and encouraged to do so. Government costs for such schemes are relatively low, since they consist of only support, provision of information, and the development of procedures which ensure that the management systems are truly democratic. Constraints to the rapid development of such an approach are lack of clear policy decisions on the part of Governments to encourage such schemes and the difficulties of communities to obtain credit for development. A successful example of how to solve this problem is the Grameen Bank in Bangladesh and the Farmers Agricultural Credit Groups in Sri Lanka and Bolivia, the latter set up with the support of FAO's Plant Nutrition Management Programme. The components of such schemes are a clear and promulgated government policy, an invitation to groups to come forward with proposals, institutional support to provide information, and availability of credit;

(c) Tax structures designed to encourage investment in the improvement of land resources in the long term and to reward investors who buy degraded land and improve it. An example of this is a new tax system in New Zealand under which the cost of producing a crop of trees is deductible from income as a whole in the year in which the trees are planted rather than at the time of harvest. There is also the possibility of identifying preferred land uses for each land type and providing tax advantages to encourage their adoption. It is now possible to monitor land use by satellite, and countries such as Brazil, Canada and the EC group are currently developing systems to do so;

(d) Financially self-sustaining systems based on demand for legal titles to land. It has been shown that land users are willing to pay for cadastral services if they result in legal titles to land.

73. Additional policy options in the financial field include:

(a) Tailoring the Global Environment Facility to cover the vast range of activities directly related to introduction and maintenance of sustainable land use, while avoiding land degradation and its effects on global and local climate systems;

(b) Further investigation of possibilities initiated by the World Bank for direct investment in enhancing land productivity and soil fertility. This would have beneficial effects in terms of production, profitability (and hence, a reduction in rural depopulation) and sustainability.

74. The key to success in land-use planning and management for sustainable use is felt to lie in an integrated approach based on partnership with the land users. This requires adequate governmental support in a variety of different areas, and the Governments of less developed countries will continue to require technical and financial assistance from donors. This should not be haphazard and uncoordinated, as in the past, but should be based upon a land resource management and development plan for each country.

2. Technological capacity

75. The need to strengthen technological capacity is highlighted in chapter 10 of Agenda 21. Governments are urged to promote focused and concerted efforts for education and training and the transfer of techniques and technologies that support various aspects of the sustainable planning and management process. 10/

76. Relevant aspects of technology are:

(a) The mapping, definition and analysis of land resources and ecosystems;

(b) Identification of sustainable land-use options;

(c) Improvement of production and management systems;

(d) The mapping and registration of land holdings;

(e) Methods of providing information and platforms for negotiation (social technology);

(f) Environmental and land-use monitoring;

(g) Dissemination of information for decision-making and management.

77. Taking all countries together, comparatively little progress has been made in the development of land-use planning mechanisms for identifying objectives, at the global, national, community or individual family level. Some progress has been made in the collection of the necessary physical data, and rather less in the collection of the necessary social and economic data. Practical multiple criteria analysis procedures applicable at the various levels are beginning to become available to support decision-making.

78. There are some models for resource management at the community level, but although there has been much discussion about the need to involve local communities, there has been comparatively little practical demonstration of how this can be done. FAO's recently published Guidelines for Land Use Planning 6/ provide advice in this area.

79. The advent of computers and computerized data storage has revolutionized the field of land resources planning. It is now practical and economically feasible to store, access, analyse, assess, and combine the mass of disparate data on soil, topography, climate, water resources, land use, populations, costs, social factors and so on which have to be taken into account. For some years it has been possible to overlay layers of thematic information, to take into account the ecological requirements of crops, model the effects of production systems, and predict levels of output and environmental impact. FAO's Agro-Ecological Zoning methodology 11/ is an example which has been applied at the continental, national, and district levels - the latter, for example, in China and Kenya. A closely related but less developed approach which stems from the Framework for Land Evaluation, 12/ and which can be applied down to the farm level, defines land units, matches them with possible uses to identify and quantify use options, and facilitates selection of the best mix of options in

relation to production costs, sale prices, markets, resources and, most importantly, objectives and needs.

80. Standard database structures have been developed and have been in use for some time for soil and terrain data, climate data, water resources data, crop environmental requirements data, land use information, and other data groups. Computer hardware and software is becoming substantially cheaper, and the level of computer literacy is rapidly rising.

81. Remote-sensing techniques now provide the means to survey and monitor large areas quickly, frequently, at relatively low cost, and in rapidly increasing detail. In the future, hand-held global positioning systems (GPS) will be increasingly used to provide precise geographical locations for all types of data.

82. But though the technical system methodology exists, it has not been fully linked with the social and economic aspects of the total picture, and in all fields there is a lack of the detailed information which is needed for projects or area programmes. The depiction of spatially diverse social and economic aspects in a GIS system, with in-built capacity to reflect changes over time, is still in its infancy. Arrangements for systematic involvement of all stakeholders in actual or potential land resources planning and management at the national, district, and community levels, through the creation of "platforms for decision-making" are still rather rare.

H. Institutional structures

83. In many cases technical answers to the problems of sustainable development and environmental protection are known, but humanity is as yet unable to develop the social and economic means to apply them. This is particularly the case with regard to land, which is the basis for most food production but which is used for many other purposes and is simultaneously the direct basis for livelihood for a large part of the world's human population and for a vast number of valuable ecological systems.

84. Existing institutional structures are very largely sector-oriented. Ministries or departments of the environment, planning, land, local government, agriculture, forestry, health, trade and many other sectors all deal with matters that affect how land is used. Overlapping responsibilities are very common. Established institutions tend to resist change successfully. Although a number of environmental protection agencies and ministries of the environment have been established, effective cooperation is still lacking in many countries. Since institutional structures are unlikely to change significantly in the foreseeable future, the only practical approach is to build a system of linkages in the form of interdisciplinary and interinstitutional working groups. Such forums are necessary at all levels.

85. Capacity-building must also be mentioned in relation to institutions. In institutions all over the world there is need for reorientation and development of integrated strategies. In developing countries and countries with economies in transition, there is need to provide staff with technical and professional

training. Schools and universities need to devote curriculum space to land resource issues.

I. Recent developments and experiences in international cooperation

1. Intergovernmental processes

86. There is a growing realization of the need for action. Some countries have sponsored activities, such as the Conference on Sustainable Agriculture and the Environment (1991) and the World Coast Conference (1993). The Global Conference on the Sustainable Development of Small Island Developing States also gave high priority to land-use planning. Guidelines for the integrated planning of coastal zones have been drawn up. The Netherlands Government is planning to host an international workshop on the integrated planning and management of land resources in February 1995. But as yet, such efforts are uncoordinated and do not take place within a mutually reinforcing global framework. There is danger of fragmentation and dissipation of resources and effort and even of the growth of conflicting views and technical procedures. Avoidance of this is particularly important in view of the need for standardized collection, classification, storage, and processing of land resources information.

87. There is no international agreement or programme specifically aimed at land-use planning. There have been a number of agreements dealing with related subjects, such as the International Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa (which stresses interdisciplinary and participatory approaches to the preparation and implementation of national desertification action plans), and several river basin treaties such as the Amazon Cooperation Treaty, the IGADD agreement on the Nile Basin and the Mekong Basin Committee.

2. Organizations of the United Nations system

88. Agencies, such as FAO, UNCHS(Habitat), the World Bank, and to an extent, IFAD and UNEP, work at all levels, from global to farm to municipality, and deal with all aspects of land resources planning and management. It is not possible in the present report to mention more than a very small fraction of their activities.

89. FAO has initiated collaboration with other United Nations agencies in the development of land cover and land-use classification systems suitable for widespread application, and work is leading to collaboration in related fields. An important project to map land cover and land use on the African continent has recently become operational (the AFRICOVER project). Over the past two years FAO has also expanded its Special Action Programme for Land Conservation and Rehabilitation. The Special Action Programme for Water and Sustainable Agricultural Development (WASAD) gives increasing attention to the linkages between land and water. Agroecological zoning has been carried out in Bangladesh, China, Kenya, the Caribbean, and other areas. FAO's Integrated Plant Nutrition Programme is being reoriented on the basis of an integrated

approach to the management of soil, water, and plant nutrients at the farm level. Through its regular programme and field projects, the organization implements many initiatives that directly support the objectives of chapter 10. It is also actively developing an interdisciplinary approach through its Inter-Departmental Working Group on Land Use Planning. The FAO Land Regularization Task Force (LRTF) has been involved in land consolidation and land registration activities in many countries, including a number in Eastern Europe.

90. An important task of UNCHS (Habitat) is to provide for the land requirements of human settlements. Programmes focus on key issues such as competition between different land uses; access to land, provision of water, sanitation, and energy; and conservation of land resources in and around settlements. An example of inter-agency collaboration is the UNDP/Habitat/World Bank Urban Management Programme. Another is the Sustainable Cities Programme. At the local level, support is given to the development of spatial planning and land registration programmes; at the community level priority has been given to land tenure regularization and the development of cadasters and up-grading of land registration services.

91. The activities of UNCTAD are based on the premise that one of the most important requirements is for policies which provide sufficient economic incentives to rural communities for the adoption of sustainable management practices.

92. The development and implementation of national land-use policies, land tenure systems, and land-use planning processes are key activities under the National Environmental Action Plans which have been prepared by the World Bank for developing countries since 1992. Many have been completed in Africa, Latin America, and the Middle East. The World Bank also prepares country environment strategy papers which define principal environmental and natural resource management issues for countries and define the Bank's strategy for addressing those issues.

93. The World Food Programme (WFP), through its food-for-work programme, has carried out large numbers of projects in support of afforestation, irrigation and drainage development, conservation, and infrastructure development. WFP is moving to support community initiatives to plan and manage land resources. In several Indian states, for example, WFP projects use funds generated through forestry projects to support tribal communities in planned development of their lands. Local non-governmental organizations assist the communities to articulate their needs and manage new forestry or agricultural assets.

94. WHO has drawn attention to the relationships between the occurrence of disease vectors and land use. Examples are onchocerciasis and river valley development, and the control of malaria and schistosomiasis in irrigated areas. The joint WHO/FAO/UNEP Panel of Experts on Environmental Management of Vector Control (PEEM) is a good example of inter-agency cooperation in this field. WHO is currently assisting a number of countries to strengthen their health-sector capacity in the area of GIS at the national and, where possible, the municipal levels.

95. The work of national meteorological and hydrological services is coordinated at the international level by WMO which has established a degree of standardization in the manner in which climatological and hydrological data and information are collected and analysed. The organization's Hydrology and Water Resources Programme plays a similar role with respect to information on freshwater resources.

96. Some of the ILO's objectives relative to indigenous and tribal peoples for the 1990s include the promotion of a platform for different levels of government and other parties to develop a shared understanding of the major problems and hopes of indigenous and tribal peoples and to collaborate in the diagnosis of relevant environmental issues and in the identification and implementation of solutions. These would include land tenure security and the right for the indigenous and tribal peoples to participate in the use, management and conservation of natural resources pertaining to their lands. This work forms part of the ILO's efforts to promote the ratification and implementation of an indigenous and tribal people's convention. Under a project for strengthening pre-cooperative rural organizations in Bolivia and Peru, the ILO is managing the legal education component. This consists of training indigenous local authorities as to their rights and obligations in terms of land-use planning and management under the ILO's normative framework and in ways to improve law enforcement.

97. UNEP published a series of guideline documents on the integrated sustainable management of land resources. UNEP was instrumental in the preparation of a Global Assessment of Soil Degradation (GLASOD). It stimulated the development and application of Soil and Terrain digital databases (SOTER) and, together with FAO and the International Society of Soil Science (ISSS), executed a number of projects for national soil policies.

98. The Economic and Social Commission for Asia and the Pacific at its second session in October 1994 considered a paper on land-use planning for sustainable development prepared by the Secretariat. 11/ This discusses issues and provides information on programmes in the region which relate to the subject. The Economic Commission for Latin America and the Caribbean (ECLAC), in cooperation with UNEP, conducted a study on the application of economic and policy instruments designed to address the environmentally sound and sustainable development of key productive sectors such as agriculture and forestry. No further information on the activities of the regional economic commissions specifically related to the implementation of chapter 10 is as yet available to the task manager.

99. The organizations of the United Nations system feel that development of a wider exchange of experiences and information is essential. It is clear that there are overlaps between the activities of the various agencies in relation to land resources development and management and that considerable benefits could result from rationalization and closer collaboration. This can be achieved through development of a joint approach, development of collaborative programmes, and greater use of joint working groups, to be initiated by the task manager.

3. Organizations outside the United Nations system

100. A number of non-governmental or semi-governmental organizations have recently come into existence as a result of interest in a perceived threat to global systems, many under the auspices of the International Council of Scientific Unions or the Third World Academy of Sciences. These include the IGBP group of programmes. One of them is the proposed monitoring of changes in natural and managed ecosystems through a global terrestrial observing system, which is also supported by FAO, UNEP, UNESCO and WMO, and would complement similar arrangements already in place to monitor climate and oceans. The IGBP programmes are active and institutionally well supported but are more science- than people-oriented. However they have begun to cooperate with the Human Dimensions of Global Change programme of the International Social Sciences Council. Mention should also be made of the activities of the International Union for the Conservation of Nature, the World Resources Institute, and the International Institute for Environment and Development.

III. CONCLUSIONS AND RECOMMENDATIONS

1. Main conclusions

101. The greatest constraint to development of more productive and sustainable land use is probably the present fragmented and sector-oriented approach to the matching of land resources and human needs for land. Typically, at the present time, issues relating to the use of land are the responsibility of a host of different organizations, none of which is in a position to take a holistic view or develop an approach that covers all related factors. Thus, for example, an agricultural extension service may strive to persuade or assist farmers to increase production even though low prices may fail to provide an incentive for them to do so; conservation services bewail the fact that land users perversely refuse to see the advantages of conservation practices even though land tenure systems may provide no security for the necessary investment; grazing or forest management schemes provide insufficient incentive to the participants, local people are denied the benefits of wildlife management programmes and consequently view wildlife only as dangerous pests which should be eliminated.

102. There is need to review more explicitly the relationship between policy and land use. The relationship between policy and economic and social conditions, on the one hand, and land use and its impact on the physical, social, and economic environment, on the other, has not yet been clarified to the point where desired effects can be achieved.

103. Advances have been made in the development of tools and technology necessary to support more productive sustainable land use, but much less progress has been made in creating the capacity to apply these tools routinely in all countries, and there is still need to develop the means to obtain information necessary for planning and monitoring land use.

104. The need for participation of stakeholders in land-use decision-making is generally realized, but existing examples of how this can be achieved need to be more widely applied.

105. Special attention needs to be focused on bridging the gap between the objectives and activities of land users in exploiting the land resources available to them to generate production and income and the long-term objectives of the community in relation to preservation of natural resources and the environment. It is necessary to create economic and legal conditions which encourage and reward sustainable land use. Inappropriate land tenure systems are singled out as being one of the most frequently occurring disincentives in this regard. Countries will need to examine their land tenure systems, supporting legislation and administrative organizations to determine whether they are serving as deterrents to sustainable land-use practices. Where land tenure is a contributing cause of poor land management, reforms should be undertaken which will serve as stimulants to investment in long-term productivity while enhancing the security of tenure of those holders undertaking such investments. Positive land tenure reforms can be a powerful policy tool for sustainable development. They can also serve as a means of enhancing local participation in and acceptance of responsibility for a sustainable community resource base.

106. Attention needs to be paid to the development of linkages between traditional knowledge and land management systems on the one hand, and the application of science and technology on the other.

2. Proposals for action

107. Chapter 10 of Agenda 21 provides a comprehensive plan of action for developing and implementing an integrated land-use approach. An inter-agency meeting on chapter 10, held in Rome on 10 and 11 October 1994, stressed the need for the development of a holistic normative framework with the cooperation of all institutions and stakeholders which would address the growing and conflicting demands on land resources (for forestry, agriculture, human settlements, nature protection, biodiversity etc.), while avoiding land degradation.

108. The following are the main proposals presented for consideration and approval by the Commission on Sustainable Development:

Proposal 1. At the international level priority should be given to the development of a holistic and integrated framework to put in place social and economic conditions which will facilitate optimum matching of land resources with needs, in terms of production, sustainability, and conservation of biodiversity, together with the necessary technical and infrastructural support, which can be applied in any country with appropriate modifications, according to local needs and conditions.

Proposal 2. Each country should develop a national land use planning programme, containing a statement of objectives and a detailed timetable for implementation spread over a period of years, with the aim of removing constraints and providing incentives, enhancing the involvement and empowerment of peoples, developing information and management systems, and modifying institutions which are provided with suitable linkages among them.

Proposal 3. National Governments, institutions, and organizations of the United Nations system should initially cooperate in critical areas and in situations where opportunities are most appropriate for an integrated approach. These would include the following:

(a) Establishment of stable land-use systems in areas where important ecosystems or eco-regions are being endangered by human activities. This would include frontiers between cultivated and forest lands, between pastures and forest lands as well as between rainfed crop lands and range lands;

(b) Applying integrated planning and development approaches in regions which are becoming open to intensified settlement and agricultural production after eradication of human and animal health infestations, such as areas previously affected by river blindness or tsetse fly;

(c) Resolving land- and water-use conflicts of peri-urban areas and megacities, on issues such as treatment and reuse of solid and liquid waste, food production, appropriate housing, transport and other facilities;

(d) An integrated approach to capacity-building by means of joint training and regional workshops and consultancies, in order to facilitate intersectorial dialogue.

Proposal 4. National Governments, institutions, and United Nations agencies should collaborate in the development of:

(a) Basic but essential tools such as the classification of land cover and land use and mapping of eco-economic regions and life zones, the establishment and/or expansion of structures and programmes, such as AFRICOVER, that monitor and evaluate land use and environmental sustainability indicators, share and exchange the resulting knowledge base, and provide assistance and training for such monitoring;

(b) Maps and statistics showing how land is currently being used and in which areas that use is unsustainable;

(c) Geographical information systems on land resources and their use, as tools for land-use planning and decision-making.

Proposal 5. Periodic meetings and workshops should be held to exchange knowledge and experiences in the area of land resource planning and management, at:

(a) Various levels within individual countries;

(b) The regional level between countries with similar natural resources and socio-economic conditions;

(c) The global level, by relevant international organizations, in support of national needs.

Proposal 6. Individual countries or groups of countries should establish regional action frameworks in which countries and donor institutions volunteer to collaborate in joint development and implementation of improved land-use policies and programmes.

Proposal 7. National Governments and the international community, in consultation, should draw up by the end of 1995 the first draft of a covenant for good land use which would describe the general rights and obligations of all land users in relation to their neighbours and to other members of the community, in relation to the flora, fauna, and ecology of their lands, and as trustees of these lands for future generations. The covenant might subsequently be adopted by Governments as a policy document and might eventually become an attachment to land title deeds and tenancy agreements.

Proposal 8. Resources should be identified to support the activities of a working group which should draw up a detailed programme by the middle of 1995 for the achievement of the objectives of chapter 10, for adoption by countries at their discretion, and should propose arrangements to monitor and facilitate implementation.

Notes

1/ Report of the World Conference to Review and Appraise the Achievements of the United Nations Decade for Women: Equality, Development and Peace, Nairobi, 15-26 July 1985 (United Nations publication, Sales No. E.85.IV.10), chap. I, sect. A.

2/ See R. O. Oldeman, R. Hakkeling, and W. G. Sombroek, World Map of the Status of Human-induced Soil Degradation (Nairobi, UNEP, 1990). Funded by UNEP and implemented by the International Soil Reference and Information Centre.

3/ Rome, FAO, 1993.

4/ A. F. McCalla, "Agriculture and food needs to 2025: Why we should be concerned", Sir John Crawford Memorial Lecture presented to the Consultative Group on International Agricultural Research, Washington, D.C., October 1994.

5/ Rome, 1994

6/ Rome, 1992.

7/ "Settlement and development in the river blindness control zone", World Bank Technical Paper No. 192 (Washington, D.C.).

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9/ L. Fresco and others, eds. The Future of the Land: Mobilizing and Integrating Knowledge for Land Use Options (Chichester, John Wiley, 1994).

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REVIEW OF SECTORAL CLUSTERS, SECOND PHASE: LAND, DESERTIFICATION, FORESTS AND BIODIVERSITY

"Combating deforestation" and the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests

Report of the Secretary-General

SUMMARY

Two outcomes of the United Nations Conference on Environment and Development (UNCED) focused on forests: the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests, and Agenda 21, chapter 11, entitled "Combating deforestation". Both aim to achieve the sustainable management of all types of forests, with an equal emphasis on conservation and development. In the three years since UNCED, the international community has initiated actions to raise awareness; has adapted policies; has prepared and implemented plans and strategies; and has improved action programmes that were under way before UNCED.

Forests continue to meet the growing needs of mankind for forest products and services and for livelihoods that are based on them, whether of a commercial or subsistence nature. Some corrective actions have been attempted, but rapidly growing populations, poverty, unsuitable land use, adverse incentives and various other external threats, including pollution, have continued to damage forests; sustaining their multiple productive, social and protective functions remains a major challenge. Particular concerns include the loss of biological diversity; threats to the soil and water base for agriculture; and shortages of forest products, including products that are vital for rural communities, such as fuelwood and forest-based medicines.

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Countries in all categories of development have made progress in adopting improved policies and strategies. The spirit of the Authoritative Statement of Principles is reflected in many new programmes that place environmental concerns on the same plane as production and encourage popular participation. The developed countries have made the most progress and continue to allocate significant resources to environmental programmes, particularly programmes for conserving additional areas of primary forest. They have also, through incentives and codes of practice, reduced waste and increased its recycling, particularly in the area of pulp and paper. In addition, many developed countries have expressed their intention to assist developing countries in achieving the same objective. The developing countries and the economies in transition have attempted to implement similar initiatives, albeit at a slower pace due to their more limited resources.

An area of growing interest has been the development of criteria and indicators for measuring progress towards the achievement of sustainable forest management (SFM). Many initiatives have drawn up proposals that need to be harmonized so that they converge to provide a standard basis for certifying that forest products derive from sustainable sources. Such initiatives have paved the way for future trade to be based on sustainably produced goods, thus precluding the need to resort to the boycotts and bans that have become a feature of trade in forest products in recent years.

Countries have not yet reviewed the Authoritative Statement of Principles; whether they should be replaced by a legally binding instrument and what the pros and cons of such a development might be is a matter of great interest to member States.

The demand for forest goods and services will continue to grow, as will the pressures exerted on forest resources: population growth, agricultural expansion, the demand for forest products and the need for forest-based livelihoods all show an upward trend. All scenarios require taking action to create new forests and to improve the management of existing forests. To that end, matters brought to the attention of the Commission on Sustainable Development call for the involvement of all interest groups so that sector development can gain from their joint commitment and synergy, an essential element of which is mutual confidence-building and reaching a consensus on how to achieve SFM.

Of the items brought to the attention of the Commission, the following three items have a political dimension, have gained a particularly high profile or affect the vital interests of groups of member States or interest groups; it is proposed that they be brought to the attention of the high-level segment of the current session:

(a) The provision by Governments and concerned intergovernmental organizations of forums at the global and regional levels that are open to all interest groups for early consensus-building on forests, with a view to achieving an early convergence of purpose for subsequent concerted action among all groups;

(b) The direction of action to follow up the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests, and the need or otherwise for its further elaboration into a legally binding instrument;

(c) The institution of a dialogue to address urgent trade and environment-related issues concerning products from all types of forests, with a view to accelerating the replacement of the current system of unilateral restrictions with a measured transition to trade based on products from sustainably managed forests, as measured through agreed criteria and indicators.

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INTRODUCTION

1. At its first session, the Commission on Sustainable Development decided to consider the elements of Agenda 21 1/ related to land as a cluster. The present report has been prepared in response to that decision and covers chapter 11 of Agenda 21, entitled "Combating deforestation", as well as the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests. 2/ The report was prepared by the Food and Agriculture Organization of the United Nations (FAO), as task manager for chapter 11 of Agenda 21, in consultation with the United Nations Secretariat, in accordance with arrangements made by the Inter-Agency Committee on Sustainable Development at its fourth session (Geneva, 14-16 June 1994).

2. Forests were the subject of particularly intense debate at the United Nations Conference on Environment and Development (UNCED) and agreements were only reached by reconciling deep-seated divisions among countries. There is a widespread appreciation of the importance of forests for sustainable development, including their function as a natural sink for carbon dioxide and public concern at the threats they face. Although forests are relevant to many chapters of Agenda 21, particularly those associated with land use, the key agreements on forests adopted by UNCED are contained in chapter 11, entitled "Combating deforestation", and in the Authoritative Statement of Principles. The main focus of the Authoritative Statement of Principles was to call for the achievement of sustainable forest management (SFM), with both conservation and development being accorded major importance; the main focus of chapter 11 of Agenda 21 was to indicate the actions that would be required to achieve that goal. (Because forests serve as the storehouse for a major part of the world's biological diversity, they are also of major importance to chapter 15 of Agenda 21, entitled "Conservation of biological diversity", and to the Convention on Biological Diversity, 3/ which was adopted just before UNCED.) The annual cost of implementing programmes under chapter 11 of Agenda 21 was estimated at about US$ 31 billion, of which about US$ 5.7 billion would come from international development cooperation.

3. It is notable that in the field of forestry, UNCED agreements did not define many precise goals. In paragraph 11.2 (a), Agenda 21 calls for strengthening the capacities and capabilities of national institutions by the year 2000 to enable them to acquire the necessary knowledge for the protection and conservation of forests and to enhance the effectiveness of programmes and activities related to the management and development of forests. Within the overall objective of attaining SFM, there is a need to define more precise post-UNCED goals and to provide an adequate basis for monitoring and measuring progress towards such goals.

4. The present report summarizes information on progress made and experiences reported by the Governments of 34 countries, 20 non-governmental organizations, 5 private-sector associations, 14 United Nations agencies and 6 non-United Nations intergovernmental organizations. A number of international bodies, both intergovernmental and non-governmental, contributed by participating in a

21-member electronic mail (E-mail) group on forests. 4/ References to individual countries or organizations are illustrative rather than exhaustive.

5. The present report has been prepared by FAO, as task manager responsible for facilitating harmonized action within the United Nations system in the follow-up to forest agreements under UNCED.

I. OVERVIEW

A. The forest resource

6. According to the 1990 Forest Resources Assessment 5/ carried out by FAO in cooperation with member Governments and international institutions, the world's forests cover about a quarter of the earth's total land area. Forests cover about 3.4 billion hectares (ha), while other woodlands cover 1.6 billion ha. Approximately 1.4 billion ha are temperate, boreal and sub-temperate forests in industrialized countries; these are broadly stable or increasing, although there is still pressure on primary 6/ and natural stands, as well as damage from pollution and fires that reduce forest quality. Some temperate forests are located in developing countries, and face the same deforestation and degradation pressures that face tropical forests; others, however, such as those in Chile, are growing.

7. The nearly 1.8 billion ha of tropical forests were deforested at an average rate of 15.4 million ha annually between 1981 and 1990; that rate of deforestation was significantly faster than it was a decade earlier. Tropical deforestation is caused by conditions similar to those that in earlier centuries caused forests to be cleared in what are today industrialized countries. Sub-temperate and Mediterranean forests face pressures that vary considerably from developing to developed countries. Worldwide, only about 5 per cent of all forests are located in protected areas. In the developing countries, only limited areas of forests are under formal management; in Europe and North America, most forests are managed. The ownership pattern varies considerably: forests in many developing regions tend to be in the public domain or under traditional communal ownership, whereas in some major forestry countries, such as the United States of America, private ownership is also significant and in some cases even dominant.

8. There are approximately 100 million ha of forest plantations worldwide, with an additional 14 million ha of rubber and coconut oil palm plantations, which increasingly also provide wood and other forest goods and benefits. Tropical industrial and community plantations total about 30 million ha worldwide, about 1.8 million ha of which have been successfully established each year in the decade 1981-1990, a rate that may have increased since UNCED.

B. Economic and social importance

9. Forests and woodlands are the source of many goods and services, they contribute to moderating the world's environment and they are a storehouse of a large part of the biological diversity that is essential for future plant and

animal improvement. Forests also help to sustain other key resources, such as water, wildlife and soils. FAO estimates 7/ that in 1991 the global annual economic contribution of forest products, predominantly timber, reached about US$ 400 billion, with the value of exports being US$ 98 billion, or 3 per cent of total world trade in merchandise. For 8 countries, timber products exceed 20 per cent of total exports; for another 12 countries, they exceed 10 per cent. Forest products are also important as imports: in the European Union (12 countries), net annual imports of wood and wood products are worth approximately 15 billion European currency units (ECUs) (US$ 18.5 billion), a value surpassed only by expenditures on the import of oil products.

10. It is estimated that the value of the combined subsistence and wage employment provided by forestry is approximately 60 million work years world wide, with 80 per cent located in developing countries; this is equivalent to about 5 per cent of total world employment in agriculture. Much of this employment is in fuelwood/charcoal-related activities and in many societies it is of particular importance to women. It is also estimated that the livelihoods and cultures of 300 million indigenous people are closely dependent on forests. Forests contribute to food security both directly, by supplying supplementary food and fodder, and indirectly, by providing off-farm employment and income, protecting the land and water base for agriculture and providing farm inputs, such as energy, packaging and construction materials. Forests and the wildlife dependent on them support a major tourism and recreation industry. Forests are also an important source of readily accessible and affordable traditional medicines, on which at least three quarters of the world's population largely depend. It is reported that Brazil has at least 3,000 recorded medicinal plants, India more than 2,000 and Malaysia about 1,000. Forest-derived medicinal materials are an ingredient in a US$ 43 billion pharmaceutical industry world wide.

11. The maintenance of biological diversity (more fully covered under chapter 15 of Agenda 21) is another of the key contributions of forests: at least 50 per cent of the world's terrestrial species are reportedly found in tropical forests. Temperate forests are also an important reservoir of biodiversity, while mangrove forests provide habitats for over 2,000 species of fish, invertebrates and plants.

C. Demands, challenges and issues

12. Forests face rapidly increasing demands and pressures at all levels: growing populations and higher incomes increase unit consumption levels for both forest goods and forest-related services. Low agricultural productivity and poverty lead to the rapid clearing of forests as populations grow; survival is thus a major factor in developing country deforestation. Beyond that, the opportunity to produce products of a higher value from forested lands causes deforestation, sometimes with the added inducement of incentives. Estimates for the early 1980s 8/ indicate that 86 per cent of tropical forest loss resulted from agriculture alone, including about 63 per cent from subsistence farming, 17 per cent from cash crops, and 6 per cent from ranching. Over-harvesting for fuelwood, infrastructure, industrial logging and other purposes all accounted for less than 7 per cent each. In some countries, timber harvesting can

facilitate uncontrolled settlement in forest areas that are opened up by logging roads. Pollution also poses threats to temperate and boreal forests in the industrialized countries and the economies in transition. In some countries, public demand for recreation can exert high pressure on forests: annual visits in the national parks system of the United States of Americas rose from 50 million in 1954 to more than 270 million in 1993. There is also a potential for uncontrolled harvesting in the economies in transition.

13. Causes for concern include the fact that some forests have been "mined", with the most accessible and highly prized trees being harvested with little real concern for residual vegetation. FAO recently published indicative species loss rates for 1981-1990 of between 1 and 4.3 per cent among higher plants due to tropical deforestation. 9/ Since 1950, the rapid degradation, fragmentation and loss of primary tropical forests has reportedly caused the extinction of about 1,500 specifies per year, while 5 to 10 per cent of tropical forest specifies may face extinction within the next 30 years and some 492 genetically distinct populations of tree species may be endangered. 10/

14. Evidently, as illustrated above, many key influences that affect the survival of forests and provide opportunities for their sustainable development, such as population, land management, agriculture and energy, are located outside the forestry sector itself. The sustainability of forests depends as much on controlling pressures beyond the boundaries of the forestry sector as on managing or protecting forests. It is therefore of vital importance that compatibility with SFM be among the criteria used to review actions taken under UNCED agreements and Agenda 21 in the areas of biological diversity, land management, agriculture, desertification, mountain ecosystems, energy, change of consumption patterns and population.

15. At the core of both the ongoing debate and practical efforts in forestry development is the question of how to achieve a balance between the developmental and environmental roles of forests. One important issue is that each interest group has its own perception of which forestry problems deserve the greatest or most urgent attention; as a result, there is often disagreement among the many actors with an interest in the sector, whose divergent views and priorities have sometimes led to serious conflicts. At the national or local levels, there have been cases of intense clashes between industrial forest owners and environmental groups that have caused all interested parties to lose. At the international level, groups calling for greater environmental responsibility in the timber trade have at times resorted to bans and boycotts instead of adopting consensus-building approaches. It is to minimize such conflicts that efforts are under way to develop, adopt and apply an agreed operational definition of SFM, as well as a set of criteria and indicators for measuring progress towards SFM.

16. The imagery of our planet as a common home under threat, so effectively used by the World Commission on Environment and Development (WCED), 11/ has been of fundamental importance in increasing the globalization of forestry agenda. The international debate is increasingly concerned with how to reconcile national development objectives with such global environmental objectives as ameliorating climate change or conserving genetic pools to a degree that is often well beyond the needs of individual nation States. One long-standing

issue is how to provide with incentives or compensate those countries or communities that are pressured to forego the right to utilize their forests for the sake of global environmental security.

17. The undervaluation of forest land and forests in traditional economic analysis, together with long-term profit horizons and the low financial profitability of forestry investments relative to other options, encourage the displacement of forests by more attractive land-use options that yield higher benefits, especially in the shorter term. Low prices worsen the problem and forest fees on public lands sometimes reflect only a fraction of management costs; yet raising such prices might make forest products that are harvested according to the principles of SFM uncompetitive with market substitutes.

18. There are three other important issues that call for attention: (a) the shortage of information on which to base policy, priorities and strategies; (b) the inadequacy of scientific and technological knowledge (forestry does not yet have the equivalent of the agricultural "green revolution", although the productivity of well-managed forests is much greater than unmanaged ones); and (c) the general weakness and relatively low institutional profile of many forestry agencies, and their consequent limited ability to secure political support for forestry sector activities, to be taken seriously as partners by institutions in linked sectors, or to effectively mobilize all interest groups for cooperative action. Other potential issues include the inadequacy or distortion of policy in linked sectors or in macroeconomic terms; the adoption of narrowly sectoral policy and institutional approaches to address problems that are multisectoral; insecure land and tree tenure; inadequate funding; and disincentives to investment. Most of these issues are particularly serious in developing countries.

II. REVIEW OF PROGRESS ACHIEVED, MAIN POLICY ISSUES AND EXPERIENCES

19. Given the long-term horizons of forestry, only three years after UNCED, it is too soon for any dramatic change to have occurred in the sector. Some progress has involved the continuation of earlier practical action. More typically, however, preparatory actions have been undertaken to create an environment conducive to effective future practical action. Such actions include awareness raising, attitude adjustment, the preparation of standards, policy changes, planning and strategy preparation, and institutional reform.

A. Progress made since the United Nations Conference on Environment and Development that is common to countries in all categories, international organizations and major groups

20. UNCED reflected the conviction that the forestry sector should allow environmental considerations to permeate all development and become a central rather than a peripheral issue. UNCED also highlighted the role of non-governmental interests, including forest-dependent communities, in sustainable forest development, as well as the intersectoral nature of many key

forestry concerns. For the forestry sector, awareness of such matters among policy makers and planners and the associated attitude change has been one of the major areas of world wide progress since UNCED, prompting efforts to search for an early achievement of SFM and to develop the necessary criteria and indicators for measuring progress in all types of forests towards this goal.

21. The development of criteria and indicators that will permit certification will also lay the foundation for non-discriminatory trade in sustainably produced timber from all types of forests, and should make it unnecessary to continue resorting to bans and boycotts. An institutional problem has arisen in some countries, however: commitments by national Governments to move away from boycotts and bans are not necessarily binding on lower levels of government, such as states, counties or cities, some of which are still applying blanket measures against selected categories of forest products, such as tropical timbers. Even before UNCED, some 450 city councils in Germany and more than 90 per cent of local councils in the Netherlands had banned the use of tropical timber. In the United States of America, the states of Arizona and New York are reportedly prohibiting the use of tropical timber in public construction projects. Some retail businesses have also autonomously barred certain products on the basis of geographic origin. In a move to support both conservation and sustainable timber production, the African, Caribbean and Pacific States (ACP)/European Community (EC) Joint Assembly in 1993 proposed a timber protocol to the Lomé IV Convention to provide a system of trade and aid measures for ACP countries; a study on the protocol has been completed and is under consideration.

22. As to the follow-up to the Authoritative Statement of Principles, UNCED had called for such follow-up to be kept under assessment for its adequacy with regard to further international cooperation on forest issues. Paragraph 11.12 (e) of Agenda 21 provides for considering the need for and the feasibility of all kinds of internationally agreed arrangements to promote international cooperation. It may be too early to undertake such a review only three years after UNCED, especially considering the deep-seated contrasts in viewpoint that earlier discussions revealed. On the other hand, a number of Governments are willing to revive the idea of a legally binding convention. A 1993 meeting of the ACP/EEC Joint Assembly called for regional and international meetings to discuss a convention on the basis of a model prepared by the Global Legislators Organization for Balanced Environment (GLOBE). In addition, some non-governmental groups have started campaigning for a legally binding forestry protocol under the Convention on Biological Diversity rather than a free-standing convention. Other interest groups argue that such a move would tilt the Authoritative Statement of Principles towards conservation and undermine its equally important commitment to development. In March 1995, the FAO Committee on Forestry and its associated meeting of ministers responsible for forestry will review the pros and cons of retaining the Authoritative Statement of Principles or moving towards legally binding alternatives. However, given the pace of progress in addressing such issues as the criteria and indicators for SFM and environment and trade in forest products, more time will probably be required before a global forestry convention is feasible.

23. One area where more progress is desirable is that of consensus-building among Governments, non-governmental advocacy groups and the commercial private

sector, given the considerable diversity of views that prevails on what constitutes SFM, how best to achieve it and at what pace it should progress. These interest groups share a general desire to maintain a balance between development and conservation, and the non-governmental organizations have been searching for a forum where they feel as equally able to influence the outcome as Governments. One prospective forum is the Consultative Group for the Tropical Forests Action Programme (TFAP) set up by the FAO Council; this would bring together participants from Governments, the private sector, and intergovernmental and non-governmental organizations, with an appropriate balance among regions and categories; however, the Group has not yet had the opportunity to meet. Recent intergovernmental initiatives, in which some non-governmental bodies have also participated, are described in section II E below. The continuing involvement of all interest groups would help to reduce the polarization that currently prevails in the international debate on forests by addressing in a neutral context such issues as lack of definition, clear targets and a shared perception of sustainability in forestry.

B. Country experiences

1. Developed countries

Common areas of progress and common problems

24. The most visible achievements common to most of the developed countries have been the revision of national forestry policies, strategies, plans and guidelines to increase the emphasis on environmental and social considerations while maintaining support for the productive roles of forests, especially for the processing and utilization of forest products. The European Community is sensitizing its member States on the need to adopt a common policy and a major European role in addressing global forest issues, including support for the sustainable management of tropical forests. The European Union (EU) has prepared a strategy for the management, conservation and sustainable development of EU forests. Special attention has also been given to increasing efficiency in the production, conservation and use of energy in many sectors, including transport, so as to reduce damage-inducing pollution. Increased consultation with and participation of non-governmental interests and local authorities is also being promoted, although according to many non-governmental organizations, such efforts have been inadequate.

25. In many cases, incentives have been increased and policy instruments have been better targeted on promoting multiple-use forest plantations, in particular for the benefit of plantations established on land that is released from agriculture for timber production, but also to assist in carbon sequestration, improve wildlife habitats, and increase the amount of forest available for recreation. Many industrialized countries plan to restrict the use of timber that originates from unsustainably managed sources (whether tropical or temperate/boreal) and to reduce such harvesting practices as clear-felling.

26. Many countries are working together to develop criteria and indicators for measuring progress towards SFM. However, further progress has yet to be made on establishing clearly defined and generally accepted definitions of SFM; whether

performance should be assessed at the national, area or forest-management unit level, how to set threshold values for indicators and on what basis criteria should be weighted to suit circumstances; how to cope with the unequal capacity of countries to meet requirements; and whether to extend indicators beyond technical measures to include the economic, institutional or political dimensions of sustainability. Consumption patterns have not been generally addressed except in the area of pulp and paper, in which legal measures, fiscal incentives and voluntary industry codes of practice have been deployed to reduce unnecessary packaging, further encourage non-toxic processing technologies, improve energy efficiency and recycle increasing proportions of used paper and board.

27. Other areas in which some progress has been made include the consideration of biological diversity; the reservation of more primary forests; the use of multi-purpose native species; less regimented planting and management regimes for landscape and other environmental purposes; the clear inclusion of forestry concerns into national sustainable development strategies; and broadening end-use objectives beyond timber production to ecosystem management to sustain multiple benefits. In addition, there have generally been declarations of intent to boost the forestry share of external aid budgets.

28. In some areas, the developed countries in general have made less progress or have faced problems: (a) a reduced demand for small-wood due to fibre recycling and to unremunerative prices has led to smaller harvests thus leaving forests to remain crowded, with increased danger of disease, fire and over-maturity; (b) in many countries, the financial returns on forestry are low or even negative, necessitating some form of public subsidy, which is usually justified as a stimulus and reward for the supply of non-wood goods and services. For example, in Germany and the United States of America (on public lands), State intervention is reported to have facilitated below-cost sales of public forest timber, thus possibly discouraging private investment. In some parts of Canada, forest industries reportedly purchase standing trees at a third of administration costs and also receive capital subsidies. In Sweden, some non-governmental organizations claim that subsidies for land drainage to increase timber production have led to the loss of large areas of wetlands.

New or adapted policies, plans and strategies

29. Sweden is an example of a highly forested, timber-exporting developed country. It approved a new forest policy in May 1993, as well as a forest act to reflect it that gives equal priority to the forest environment and to production. The forest owner is responsible for environmental measures in forests, but if the costs are too high the State must pay compensation; the costs for national parks and nature reserves are to be borne by the State; there is to be more emphasis on extension service and less emphasis on law; there are to be more diverse forests; and environmental impact assessments are to be ensured.

30. The types of adjustments adopted by developed countries that are much less forested are illustrated by Denmark, where the post-UNCED strategy for State forests proposes, inter alia, a doubling of the forest area in one tree generation; a significant increase in non-intervention reserves and the

management of multiple-use forests; a greater focus on the conservation of biodiversity and genetic resources, and other environmental functions of forests. Portugal has adopted a national action plan on forests with similar provisions. In the Netherlands, a new forestry policy plan, inter alia, provides special tax arrangements for forestry and other incentives for replanting agricultural land. Luxembourg has adopted a so-called green plan.

Management, conservation and sustainable development of forests

31. There is evidence, especially in North America, of a general shift from sustained timber yield to sustainable forest ecosystem management, which provides multiple benefits while retaining overall system functions. In the north-western United States of America, there are proposals to ban clear-cutting; government lands must retain 15 per cent forest cover in logged areas; and the so-called President's plan of 1993 provides for the designation of new biodiversity reserves on federal lands in the region. One challenge is how best to reconcile diverse demands and secure consensus on trade-offs, such as in timber yield or employment and income, if they are affected by changed focus. Canada reports having implemented a so-called partners in the sustainable development of forests programme, which has established nine working-scale model forests and has enlisted all levels of government, aboriginal groups, industry and other forest interests in implementing SFM codes of practice; the continued use of clear-felling in harvesting is a point of contention. France adopted in 1994 an elaborate national plan to put into effect the Authoritative Statement of Principles; there is strict control of forest clearing and a tax has been imposed to discourage it. Policies protect all aspects of biodiversity.

32. Within the framework of the ministerial conferences on the protection of forests in Europe, European countries have established a network of permanent sample plots, whose performance will be used to gauge progress in sustainable management and health. A unified system for the management of protected natural areas of North America has been proposed to coordinate strategies for jointly protecting and conserving biological diversity in the protected natural areas of Canada, Mexico and the United States of America. In New Zealand, a revised law provides better protection for indigenous forests and a new tax regime has increased the profitability of forest growing. In 1993, Japan introduced a river-basin-based forest management system supported by service centres, supported mergers of forest owners' cooperatives and is increasing relevant funding.

Sustainable patterns of production and consumption

33. The main thrust towards SFM in almost all the developed countries has consisted of encouraging waste reduction. In the pulp and paper sector, the most significant progress has been an increase in the recovery and utilization of waste paper, a reduction of over-packaging and a reduced dependence on virgin wood pulp. The percentage of waste paper used for paper and paper-board production (also called waste-paper utilization rate) ranges from 100 per cent in Ireland to between 10 and 20 per cent in major pulp-exporting countries, such as Finland, Sweden and Canada. Some non-governmental organizations want paper and board to be made out of 75 per cent recycled fibres. The European Union and Japan have exceeded the 50 per cent waste-paper utilization rate (the global

average is 37 per cent). In the United States of America, the industry has voluntarily set itself a target of recovering at least 40 per cent of paper products by 1995.

34. The collection of used fibre is a key area of progress towards SFM: Sweden aims to increase its recovery to 75 per cent of newspaper and magazine paper by 2000 (from 63 per cent currently) and also to improve recovery in other fibre categories. In Germany, recovery has increased due to both legal and voluntary environmental pressures, with the German eco-labelling system (the Blue Angel) rewarding the use of recycled fibre. However, there are technical, economic and environmental limits to recycling. It is not yet feasible to reuse fibres indefinitely and new virgin fibres are required to maintain paper properties on a long-term basis. Moreover, the environmental costs of recycling, such as energy consumption for collection, and the negative impact on forest management and related environmental consequences, such as reduced carbon dioxide (CO_2) absorption, must be carefully considered and weighted against benefits when establishing objectives and policies.

35. Since UNCED, the production and consumption of medium-density fibreboard and oriented strand board (OSB) have continued to increase rapidly, resulting in reduced demand for plywood, with two environmental impacts: (a) a greater ability to use small wood and solid wastes permits reduced waste, due to almost complete raw material utilization in the forest and at mills, and (b) there is less need to select only the largest and best trees for harvest. These gains may reduce pressure on primary forests. Better utilization of wood raw material has also been obtained through further improvements in sawmilling equipment and controls, while higher yield is also made possible through the large-scale substitution of wood-based panels made from compressed wood chips for many solid wood components. In Austria, Denmark and Germany, incentives encourage the use of energy from biomass, thus reducing the use of fossil fuels.

36. A number of developed countries, such as the Netherlands, Denmark, Germany, the United Kingdom of Great Britain and Northern Ireland and Japan, have adopted policies to help save forests abroad, especially in the tropics. Many of them have accepted the International Tropical Timber Organization (ITTO) Year 2000 Target for achieving SFM. However, the question of certain countries exporting non-sustainability has also received attention: some non-governmental organizations maintain that, having damaged their own forests or made relatively little use of them, some countries help to over-exploit those of other countries. For example, some Japanese non-governmental organizations charge that Japan, which has considerable forests, exports unsustainability by producing only 25 per cent of its wood domestically and importing 75 per cent, mostly from South-East Asia, where forests have been rapidly depleted. It has also been suggested that low prices of timber in international trade encourage imports by making domestic production in high-cost countries uncompetitive.

Institutional strengthening and capacity-building

37. Many developed countries are adapting their governmental institutions to working more effectively with other interest groups and in a multisectoral context. Canada reports providing particular support to the forestry capabilities of aboriginal populations. Japan is improving the capacity of

local authorities, cooperatives and forest owners. An earlier trend towards separating the regulatory from the management/productive functions of national forest services in such countries as the United Kingdom of Great Britain and Northern Ireland, New Zealand and Sweden has continued, with the intention of improving efficiency. Finland, the United Kingdom of Great Britain and Northern Ireland, and Canada have emphasized establishing links with industry, agriculture, science and technology interests.

Forestry matters related to other chapters of Agenda 21 and the conventions on biological diversity and desertification

38. The role that forests play in conserving biodiversity has attracted more efforts than the role they play in moderating climate change. An increasing number of primary forest pockets are fully protected, new areas of forest have been reserved, and plantations are making greater use of mixed species, with indigenous species often being promoted. Incentives have been increased or have been better publicized for multiple-species forest plantations, including those established on land released from agriculture; this is expected to assist in carbon sequestration. In France, where it is estimated that action in support of forestry can only contribute 2 to 3 per cent to combating global warming, the Government is nevertheless supporting forestry for that purpose in view of its additional environmental benefits. Although the contribution of forests can only be modest in moderating climate change, some countries are also targeting the reduction of CO_2 emissions, while others, such as Canada, Sweden, the United Kingdom of Great Britain and Northern Ireland and Germany, are undertaking research into the interactions between forests and climate change.

2. Developing countries

Common areas of progress and problems

39. A few countries, such as Indonesia, have raised farm yields by providing official fiscal and market support, thereby initiating conditions that may eventually reduce the role of farm frontier expansion in deforestation. Poverty and policies resulting in reduced access to yield-enhancing inputs, including some elements of structural adjustment, are impeding progress in many other countries. In addition, many middle-income developing countries currently have declining population growth rates. Growing environmental awareness has led to some notable initiatives, such as the Regional Convention for the Management and Conservation of Forest Natural Ecosystems and the Development of Forestry Plantations, signed in October 1993 by the external affairs authorities of Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama. The Regional Convention promotes mechanisms for discouraging actions that cause forest destruction, replanting deforested areas, and establishing sound land-use planning and settlement policies in Central America.

40. Important challenges faced by the developing countries include the need for consensus-building on such issues as the place of industrial logging in SFM; the need for further progress in securing public involvement in the creation of forest policies and programmes; the reluctance of multilateral banks and many bilateral donors to fund logging and industrial processing projects; how to

ensure that those who depend on forests can receive enough benefits to refrain from diverting forest lands to more directly profitable uses; and the inadequate flow of funds and technologies for supporting the effective implementation of national forestry action plans (NFAPs). Notwithstanding UNCED calls for the systematic observation of forests, many countries, particularly in Africa, lack information on their forests. According to the FAO Forest Resources Assessment 1990, 66 of 90 tropical countries had carried out only one forest area assessment, of which 39 had been carried out before 1981. 12/

New or adapted policies, plans and strategies

41. Since UNCED, the preparation and implementation of NFAPs has continued, in many cases under the multi-sponsor Tropical Forests Action Programme (TFAP) or the related master plans for forestry development (MPFDs), which follow TFAP principles. A total of 92 countries have adopted the TFAP approach; since UNCED, 18 of these have finalized their NFAP preparation and seven have revamped their earlier plans in response to criticism for narrowness of approach, donor-driven programmes, excessive focus on project shopping lists and non-participatory orientations. Forestry components are often also included in national environmental action plans (NEAPs), which have been adopted mainly in Africa and are still in a learning phase. National conservation strategies have continued to be prepared with the assistance of the International Union for the Conservation of Nature (IUCN), while in some countries national sustainable development strategies (NSDS) have been prepared as well.

42. With the support of the United Nations Development Programme (UNDP), China launched a comprehensive national Agenda 21 in July 1994, under which it has maintained its long tradition of rapid afforestation and integration of trees into farming systems. A number of Latin American countries have adopted legislation and policies to eliminate incentives that formerly led to forest destruction; some have suspended the provision of harvesting permits and other utilization, pending suitable plans. An example of innovative development is a provision under the Regional Convention (see para. 39 above) for creating environmental attorney general's offices within the legal framework of each participating Central American country to oversee the protection and improvement of forests. In Malaysia, a revised national forestry policy was approved in 1992 and a new national forestry act was adopted in 1993; in addition, land was designated as permanent forest estate and a continuous forest monitoring system was made operational in 1993. Since 1993, Malaysia has granted owners of private forest plantations full tax exemption for 5 to 10 years under various fiscal initiatives. Cambodia, Myanmar and Samoa have also adopted new forest policies; Namibia is implementing its new forestry policy, which was adopted at about the time of UNCED.

43. Ecuador established a high-level environmental commission and in 1994 issued an environmental policy that aims, inter alia, at greater participation by all parties, including those hitherto marginalized. The Philippines has established a council to steer its new forestry code and national Agenda 21. The Central African Republic is implementing its 1992 UNCED strategy for sustainable development, which has major forestry components.

Management, conservation and sustainable development of forests

44. Much progress has been made in the continuation of existing programmes. There has been increased attention to conservation by such means as creating or expanding protected areas. Under its pilot phase, the Global Environment Facility (GEF) funded some 20 developing country projects, mainly in protected areas and including wildlife management. India has issued guiding principles that govern criteria and indicators for SFM, and assessed forest cover in 1993; in March 1994, it led efforts to form the Global Tiger Forum for the protection of the tiger and its habitat in all tiger-range countries. Ghana has prescribed operational procedures or standards consistent with ITTO guidelines for the sustainable management of the natural tropical forest. In 1992, Mexico initiated a national forest inventory and enacted a forest law. Pakistan has allocated one fifth of available resources to forestry and watershed protection under the 1993-1998 environment portfolio of its proposed national conservation strategy. Thailand's so-called greening programme was launched in 1994.

Promotion of sustainable patterns of production and consumption

45. Major timber-exporting developing countries are concerned about initiatives in developed countries that can threaten their traditional markets. Partly to respond to concerns in market countries, they are promoting work on the application of criteria and indicators for SFM. For example, some member countries of the African Timber Organization, along with Brazil, Indonesia and Malaysia, may soon start domestic sustainability certification; in the case of Brazil, work related to forestry is being pursued in the context of developing overall indicators of sustainable development. India has focused on reducing logging waste; Viet Nam has altogether banned the logging of some rare species. Some developing countries are promoting paper fibre recycling: in the Philippines the waste-paper utilization rate is 75 per cent, while in Singapore and Hong Kong it is almost 100 per cent. Helicopter logging, which is expected to be more environmentally friendly, has been introduced on a pilot scale. Pre-UNCED programmes to improve the efficiency of wood stoves in order to reduce fuelwood demand have continued in many countries.

46. In the Asia and the Pacific region, one development that has implications for conservation is the rapid increase in rubber wood processing to substitute for certain tropical hardwoods that risk depletion. In Malaysia, rubber tree clones that are more suited for timber production are being developed.

Institutional strengthening and capacity-building

47. Although capacity-building preceded UNCED, the level of efforts still remains inadequate. The most important symptoms reflecting insufficient capacity include the slow pace of policy and institutional reform; weak intersectoral coordination; the non-adoption of forestry programmes as priorities at the highest political levels; the lack of clearly defined priorities; and a continuing over-reliance on external technical assistance. One key problem that has not diminished since UNCED is the low hierarchical profile of forestry institutions in many countries. The absorption of many forestry authorities into larger bureaucracies as well as other developments that diminish their profile make it more difficult for them to influence policy

or priorities. Under such conditions, even institutional strengthening can only have a sub-optimal impact on the effectiveness of forestry authorities at the national level.

48. Post-UNCED capacity-building efforts have occurred at three levels: (a) creating an enabling environment; (b) strengthening the capacities of government institutions; and (c) strengthening the capabilities of non-governmental organizations, local communities and individual citizens, including those of forest-dependent communities. Some aid agencies, notably the World Bank, the Asian Development Bank and many bilateral donors, wish to see a clearer division of labour between Governments (regulatory and enabling roles) and other actors, with productive or commercial activities generally being assigned to commercial private non-governmental interests. For some countries with more limited entrepreneurial and non-governmental capacities, some pragmatism may be needed in applying the principle of a strict division of labour between Governments and other development actors.

49. The most deliberate post-UNCED initiative in capacity-building remains the UNDP Capacity 21 programme, launched in 1993, for which more funding is needed. Other multilateral and bilateral agencies have also focused on capacity development since UNCED; TFAP, for example, has continued to emphasize country capacity projects.

Forestry developments relevant to other chapters of Agenda 21 and the conventions on biological diversity and desertification

50. In support of the conservation and management of biodiversity, Malaysia has established a committee, formulated or adapted policy and legislation, created a new programme of genetic resources areas, continued the Virgin Jungle Reserves (VJRs) programme first started in 1950, and is establishing a national medicinal plant research centre. Tunisia, in the context of the fight against desertification, has included a 10-year programme on forestry, water and soil conservation. In Algeria, many forestry activities are undertaken in the context of the conservation of biodiversity and action to combat desertification. Some countries have pilot projects on carbon sequestration. Partly due to increased concern for biodiversity, World Bank lending to support its conservation has risen from 5 to 11 per cent (US$ 280 million) of its forestry project portfolio and other multilateral banks report similar increases. GEF has supported 13 biodiversity projects in all regions of the developing world.

3. Economies in transition

51. Since UNCED, the economies in transition have been preoccupied with the enormous problems that transformation to a market economy involves, but many have nevertheless revised their forestry policies and laws to reflect the latest thinking and are also adapting their institutions accordingly. European economies in transition have participated in the ministerial conferences for the protection of forests in Europe held first in Strasbourg and later in Helsinki, where European commitment to the sustainable development of forests in line with UNCED principles was reaffirmed. 13/ Slovenia has a new forest act and a

strategy for the sustainable development of forests that reflect the Helsinki resolutions and the Authoritative Statement of Principles. The Czech Republic adopted new principles of forest policy in May 1994.

52. GEF has reported that projects on biodiversity are under way in five European economies in transition. Some non-governmental organizations have expressed concern at threats to primary forests posed by recent large forest development loans, especially in Belarus, Poland and Slovakia.

C. Experiences of major groups

1. Non-governmental organizations

53. In the forestry sector, environmental and other non-governmental organizations have played important watchdog and promotional roles in monitoring the adoption by various interest groups, including Governments and international organizations, of the social and environmental principles of UNCED. They have been instrumental in keeping the spirit of UNCED alive and ensuring that certain issues remain at the forefront of international debate on forestry policies and priorities. Among the issues advocated by non-governmental organizations are the needs for transparency and access to information, the right to consultation, and full involvement and access to forest-based livelihoods by forest-dependent peoples; greater use of traditional knowledge in forestry; public participation in decision-making and the implementation of SFM; a greater emphasis on the conservation of biological diversity in forest management; a greater role for forests in carbon sequestration; compensation to countries (many developing) for contributions to global benefits of forests beyond domestic needs; ensuring ecologically sensitive choices of species and plantation regimes; environmental impact assessments; more environmentally friendly harvesting and industrial processing; greater use of sustainably-sourced forest products; responsible consumption patterns; and greater recycling of forest products.

54. Non-governmental organizations have frequently challenged what they perceive to be destructive or culturally insensitive practices in both developed and developing countries. In Germany, 22 non-governmental organizations issued the Frankfurt Declaration on Labelling Initiatives for Timber and Timber Products, and have called, inter alia, for the exclusion from the domestic timber product market of "predatory sources", as well as for compensation to tropical forest countries for protecting exceptionally high levels of biodiversity. Recent issues have included challenges to forest management practices in North America, Scandinavia, the Russian Federation, the Amazon, Central America, South-East Asia and Melanesia. Advocacy non-governmental organizations have made use of many media, including drafting advisory guidelines or strategies, such as Greenpeace International's principles and guidelines for the ecologically respectful use of forests and the Global Forest Strategy of the World Wildlife Fund (WWF).

55. Non-governmental organizations have actively promoted the application of criteria and indicators of SFM by assessing forest management, processing and trade practices for compliance. WWF has developed a set of four criteria of forest quality: authenticity, forest health, environmental benefits, and social

and economic values. The Forest Stewardship Council (FSC), a non-governmental organization initiative, was established in 1993 to provide reliable information about forest products sources, help to eliminate confusing and false claims, and give credibility to certification by accrediting certifiers. 14/ Economic interests control 25 per cent of the FSC vote, while social, environmental and other interests hold 75 per cent. In June 1994, FSC established a set of principles and criteria to be applied to all tropical, temperate and boreal forests.

56. Various "operational" non-governmental organizations, both international and local, as well as a number of community-based organizations, have played a critical role in the practical implementation of grass-roots conservation and forest-based livelihood programmes, as well as in local empowerment and capacity-building. At the international level, non-governmental organizations have helped to make TFAP more participatory and more directly focused on the needs of vulnerable groups. Some non-governmental organizations operate world wide, including CARE International, OXFAM, WWF and Rotary International (which works through its local chapters to support local voluntary forestry activities).

57. To benefit from some perceived strengths of the non-governmental organizations, many international and government agencies are making efforts to cooperate more and have better working relationships with them. In the Philippines and Colombia, protected areas are co-managed with environmental non-governmental organizations, while some countries channel aid directly to them. Non-governmental organizations routinely participate in operations funded by the Inter-American Development Bank (IDB). The Regional Convention (see para. 39 above) supports popular participation, cultural diversity and the rights of inhabitants of forested areas in Central America. France has progressively made nature protection associations close partners of the Government in designing forest policy or addressing particular issues.

Perception of progress and areas for improvement

58. Some non-governmental organizations indicate that they have encountered a number of difficulties in realizing their roles in forestry, including Government reticence to deal with them; a tendency on the part of some Governments to stage-manage their participation; being co-opted and compromised by financial, procedural or legal means; having their decision-making autonomy undermined; occasional hostility; and attempts to marginalize or exploit them. On the other hand, a number of other interest groups maintain that advocacy non-governmental organizations are sometimes unwilling to place issues in the perspective of other pressing concerns or to acknowledge the limited resources that make it difficult to address all matters with an equal emphasis or urgency.

59. Many non-governmental organizations feel that progress could be faster, pointing to continued forest damage and the apparently low levels of grass-roots involvement, and calling for the implementation of the FAO Peasants Charter to correct skewed land ownership or access patterns, which concentrate human pressure on the few forests that are accessible to the poor, thereby contributing to their degradation and loss. They also call for ratification of

the ILO Convention on Indigenous and Tribal Peoples and negotiation of the draft United Nations convention on indigenous people.

2. The commercial private sector 15/

60. In many countries, the policy climate favours free markets and minimal government intervention; however, market forces are not adequate to ensure that adequate attention is paid to environmental protection. Nevertheless, Sweden expects private forest owners to cater for environmental services; State inputs are provided only if the burden becomes too high. At the international level, commercial private-sector efforts to follow up UNCED are promoted by such groups as the International Network for Environmental Management (INEM) in Germany or the Business Council for Sustainable Development (BCSD) in Switzerland. BCSD has established task forces on, inter alia, internalizing social and environmental costs in prices, and conducting a global study on the environmentally sound production and use of paper.

61. The American Forest & Paper Association (AF&PA), whose members account for more than 90 per cent of domestic paper manufacturing capacity, 65 per cent of solid wood production and 95 per cent of industrial forest land in the United States of America, has opted to use codes of practice to promote SFM. AF&PA has adopted its own sustainable forestry principles and implementation guidelines; from 1996, adherence to the principles and guidelines will be a condition of membership. The general public will be kept informed and can directly evaluate the industry commitment and monitor progress towards SFM. The guidelines are intended to be an alternative to unilateral labelling schemes, boycotts and other trade barriers employed in promoting SFM. The retail sector has participated in pressing for the certification of timber for its sustainable origin; some retailers now accept only or mostly certified timber. In the United Kingdom of Great Britain and Northern Ireland, WWF has begun a so-called 1995 club, under which 24 retailers have agreed to sell only wood from sustainable sources by 1995.

62. To facilitate private-sector efforts in achieving SFM, forest products prices should more accurately reflect the true values and increased costs associated with sustainable management of the resource, including environmental costs. 16/ Consumers would have to accept higher prices for sustainably produced forest goods and services, their willingness to do so, however, has yet to be ascertained on a large scale. It is not certain whether forest products based on higher-priced raw materials could still compete with substitutes; if not, whether the use of such alternatives would constitute an environmentally superior option would be open to question.

63. One important government incentive that could be provided for achieving SFM would be to create policies that would favour private investment and entrepreneurship into value adding industries over wood or non-wood trade in raw materials. An example of what considerable investment in technology, human resources development and local entrepreneurship can achieve is the evolution of policies on forest utilization that has occurred in Indonesia from the export of raw logs to the local processing of timber products. The private sector will

continue to need assurance of long-term security in its access to forest resources if it is to strengthen its commitment to their sustainability.

3. Other major groups and civil society

64. Local governments are often at the forefront of setting and enforcing regulations in many countries. Thus, in some developed countries even though national Governments may have no restrictions on tropical timber, some local governments continue to apply discriminatory practices against tropical timber, as exemplified by the local authority bans on tropical timber in Germany, the Netherlands and the United States of America mentioned above (see para. 21). Mechanisms are evidently needed for involving local governments in dialogue in order to promote even-handed approaches. Among the initiatives of civil society, the launching of the independent World Commission on Forests and Sustainable Development (WCFSD) is notable. WCFSD, which is supported by the InterAction Council of former Heads of State and Government, plans to report to the Commission on Sustainable Development in 1997 on matters related to awareness raising, North-South cooperation and consensus-building.

65. The Executive Committee of the International Federation of Agricultural Producers (IFAP) feels that farmers are ready to embrace more sustainable practices, provided that these are ecologically sound, profitable and allow viable rural economies. In the developed countries, farmers responding to policies for reducing surplus food production may transfer some land to forestry. The Organisation for Economic Cooperation and Development (OECD) intends to study further the linkages between farm forestry and rural development in the context of agricultural policy reform. In poorer countries, FAO and the World Bank, among other agencies, have observed significant farmer success in integrating trees into farming systems when market opportunities exist.

66. The role of forest-dependent peoples is highlighted under the new forestry policy of the Asian Development Bank, which intends to give forest-dependent peoples an economic stake in forests. Viet Nam and India have variously encouraged participation by local inhabitants and forest dwellers. During the 1993 International Year of Indigenous Peoples, Belgium organized a meeting on the forest populations in Africa, insular Asia and South America.

D. Matters related to finance and technology

1. Finance

Context

67. Prospects for forestry funding should be seen against the background of broad macroeconomic and international development cooperation issues, including debt and its relief. These broader issues are covered by the Commission's Inter-Sessional Ad Hoc Open-Ended Working Group on Finance (ISWGF) and will not be treated in the present report. ISWGF will review the influence of the international policy environment on funding flows, and will make recommendations

on the mobilization of domestic resources and the creation of innovative financial mechanisms.

68. In most countries, local resources, including government finance or fiscal measures, private-sector investment and in-kind efforts of communities or individuals, are the main source of funding for forestry conservation and development. External funding from official sources has only a supplementary role; much of this is bilateral rather than multilateral aid. International private-sector flows may equal or exceed official aid in such fields as forest industries. However, there is no significant information available 17/ on all these major types of funding. Notable pledges were made at UNCED but information on progress in their fulfilment was not available for the present report. Japan had pledged that its environment ODA would increase from US$ 9 billion to US$ 100 billion over five years (1992-1997), some of which would benefit forestry; official sources have indicated that that commitment had already been half fulfilled by fiscal year 1994. In the future, a number of developed countries plan to increase their allocations for the environment. For example, the international environment and nature fund of the Government of Denmark is expected to reach 0.5 per cent of GNP by 2002.

69. The conservation and environmental functions of forests, which depend most on public financing, are most underfunded in many developing countries, whose government budgets are often severely limited. Some developing countries are unable to raise adequate revenues from forest goods or services due to low prices, a lack of administrative capacity to collect fees and illegal trading. For such countries, a key issue remains their heavy reliance on external financing.

Level of international funding for forestry: trends and priorities

70. An FAO survey of ODA showed that between 1988 and 1990 ODA for forestry (mostly tropical) grew at an average of 11.3 per cent annually to reach about US$ 1.4 billion in 1990. 18/ The 1990 level is only about a quarter of the UNCED target; it would therefore take an annual growth rate exceeding 20 per cent to reach Agenda 21 targets by the year 2000. However, the lack of reliable data on either financial resource flows from private and public sources at the national level or on the returns to such investments makes it impossible to judge the adequacy of those targets.

71. Forestry lending by the World Bank, the largest multilateral lender for forestry, more than doubled in the early 1990s compared with the early 1980s: the latest annual average lending figures are about US$ 1.6 billion, compared with about US$ 0.6 billion in 1980-1982. Recent lending shows some remarkable similarities with the profile of funding requirements contained in chapter 11 of Agenda 21. 19/ The International Finance Corporation (IFC) supports private-sector investments: in the last three years, it has committed US$ 40 million to wood industries and US$ 160 million to pulp and paper projects. Since 1977, the Asian Development Bank (AsDB), has made cumulative forestry loans amounting to US$ 794 million (annual average US$ 39.7 million), while technical assistance stood at $US 40.8 million as of 31 December 1993 and forestry components in broader projects accounted for another US$ 5.2 million. In 1993, the Inter-American Development Bank (IDB) disbursement of projects in forestry stood

at approximately US$ 65.3 million; since 1974, annual lending for forest resources management has averaged US$ 17.0 million, totalling US$ 107.8 million during 1991-1993, while forestry-related technical assistance since 1980 stands at US$ 27.8 million. The African Development Bank (AfDB) has been active in forestry lending since 1978; AfDB lending to the forestry sector had reached US$ 275 million by the end of 1994.

72. GEF funds forestry activities related to its four focal areas: climate change, biological diversity, international waters, and depletion of the ozone layer. In these areas, GEF can provide financial resources for activities that generate global environmental benefits; for example, GEF can meet the incremental costs of activities, such as reforestation, that are intended to address land degradation. Commitments under the pilot phase (US$ 732.6 million) went primarily to the conservation of biodiversity (43 per cent), and included support for a number of projects on forestry, the in situ conservation of plant genetic resources, wildlife management and game ranching, and watershed management involving afforestation. As to financing technical assistance in the forestry sector, the leading source in the United Nations system is UNDP, particularly through allocations under the indicative planning figures (IPF) of countries: in 1993, UNDP provided US$ 20.3 million for forestry world wide through FAO alone, while in 1992 it provided US$ 10.1 million for Asia alone. 20/

Lending priorities and policies of multilateral banks

73. The World Bank, AsDB and IDB generally focus on the creation or management of forest resources, with forest industries receiving only a very modest attention. The World Bank lending profile is similar to those of the other two banks: it currently allocates a quarter of its lending to the expansion of forest resources. For the World Bank, the most striking changes have been an increase from 7 to 27 per cent in funding for restorative and protective (i.e., environmental) activities; an increase from 1 to 14 per cent in funding for alternative livelihoods; a decline from 32 to 23 per cent in the share of funding for resource expansion (although the dollar amount increased 12 per cent); and a decline from 10 to 0.4 per cent in funding for infrastructure forest roads.

74. The World Bank, AsDB and IDB will not support any logging in primary forests, and will encourage the preservation of such forests and the designation of conservation areas. Current thinking appears to be that if industrial projects are worthwhile, then they will be attractive to the private sector and will not need multilateral or aid funding. There is a willingness, however, to finance smaller-scale industrial projects. IDB has three special lines of financing for the private sector, of which two support small and medium-scale operations, while the third supports an investment corporation equivalent to the World Bank's International Finance Corporation and can cover investments up to US$ 40 million. The opportunities thus provided for assisting smaller-scale industry may offer prospects for assisting many smaller, poorer countries that would have difficulties attracting purely private capital. All the main multilateral banks emphasize the need for forest-sector investment lending to be preceded by strong sectoral analysis, policy dialogue and institutional reform, including taking steps to improve regulatory and legal frameworks in forestry

and to integrate sector aims and objectives with wider economic and environmental concerns.

Conditions affecting the effectiveness of funding

75. On a global basis, one major factor affecting the overall effectiveness of external financial assistance is the fact that it goes to so few countries, which are not necessarily those that need assistance most. Thus, about 44 per cent of total 1990 ODA flows went to the Asia and the Pacific region and another 33 per cent to Africa; yet Latin America and the Caribbean, which account for nearly half the world's annual tropical deforestation, received only 18 per cent of forestry ODA. 21/ Similarly, of the US$ 3.2 billion committed so far under TFAP, the top 10 countries account for 94 per cent of commitments, leaving the other 20 countries and 1 subregion to share a mere 6 per cent; the top recipient country alone accounts for 35 per cent of total funding commitments. 22/ Other problems that reduce the effectiveness of external assistance have been identified in a study sponsored by the Forestry Advisers Group (FAG) 23/ and include the following: (a) international assistance projects reflect funding agency priorities more than they reflect the priorities of national forestry action plan strategies; (b) donor coordination by beneficiary countries is working poorly because donors often have unmatched approaches or priorities; and (c) some external agencies are insisting on a rigid application of their own procedures. The revised country-driven TFAP operating principles and guidelines were designed to minimize such problems but have not been fully implemented by some Governments and lending agencies. Consequently, some donors and international agencies are applying several frameworks for the same tasks in a single country, examples being TFAP itself and the national environmental action plans (NEAPs). To address that problem, FAG is trying to harmonize donor approaches: several donors are involved in a test case in Guyana under a common strategy for the sustainable management of the country's natural resources, including its forests.

Innovative funding mechanisms

76. Debt-for-nature swaps were the first innovative financial mechanism: started in 1987, they continued after UNCED and by December 1992 had generated approximately US$ 76 million for conservation in developing countries. IDB also undertakes debt-for-nature swaps, for example financing a US$ 100 million project of that nature to improve the quality of the Mexico City environment in 1993. A number of other mechanisms are being tested, as follows: (a) Colombia planned to divert income from coffee price-support reimbursements by the European Union to SFM; (b) the Regional Convention (see para. 39 above) provides for participating Central American Governments to create national forestry funds and ensure the reinvestment of forestry income into the forest resource; (c) tax holidays and other fiscal incentives, some initiated long before UNCED, are being applied by Chile, Brazil and Malaysia. One problem facing fiscal incentives is that in countries undergoing structural adjustment, such instruments tend to be discouraged by external agencies. Two alternative suggestions are (a) to tax the exploitation of resources and channel revenues into SFM, and (b) to convert debt to tradeable bonds for sale through financial markets. AsDB is carrying out a regional study on financing mechanisms for environment programmes involving domestic, private-sector and venture capital.

2. Technology

77. A major new development is the establishment, under the Consultative Group on International Agricultural Research (CGIAR), of the Centre for International Forestry Research (CIFOR), which complements the International Centre for Research in Agroforestry (ICRAF) within the CGIAR centres most relevant to forestry. CIFOR is, inter alia, studying better species/site matching; the dissemination of research information to users; global benefits, such as the conservation of biodiversity; and non-wood forest benefits to local communities. The International Food Policy Research Institute (IFPRI) is researching ways to sustain the productivity of farmland and thus reduce the demand for new land-clearing. The FAO Forest Research Support Programme for Asia and the Pacific (FORSPA), funded by the Asian Development Bank, UNDP and the Government of Switzerland, has continued. FORSPA provides a model for promoting capacity-building and low-cost, mutual, South-South self-reliance; FAO is promoting a similar programme for sub-Saharan Africa. Despite efforts under way, even in areas in which high productivity is essential to ensure adequate supplies for industry (without excessive demand for land) or for other reasons, forestry has not yet achieved the equivalent of the "green revolution" that benefited agriculture. Lessons from agriculture point to a need for increasing productivity but also assuring social and environmental responsibility and ensuring that any new technologies are made accessible to forest-dependent communities.

78. Non-wood forest products, which can play a very important role in ensuring forest sustainability, do not feature adequately in research and development. Yet there is much potential for improving the utilization and management of genetic resources, medicinal plants, phyto-chemicals, natural fibres, gums and resins, etc. For medicinal plants, one option would be to conclude agreements between large pharmaceutical companies in developed countries and the owners of forest resources in developing countries; an example is the agreement between INBIO of Costa Rica and Merck & Co., Inc. in the United States of America, under which Merck funds research and pays a royalty on any useful pharmaceutical or chemical compound that is isolated in exchange for plant, insect and other forest materials supplied by INBIO.

79. The above-mentioned international examples need to be more carefully emulated by providing greater attention to strengthening country-level capacities and facilities in the developing countries and to better disseminating the results of research. Such results need to be made more accessible to low-income farming communities, farmers and forest-dependent peoples in developing countries so as to help enhance their sustainable livelihoods; for that purpose, modern scientific and technological practices may need to build more systematically upon indigenous or local knowledge and practice.

E. Recent developments and experiences in international cooperation

1. Intergovernmental processes

80. Since many environmental issues are transboundary, regional cooperation in this area will be increasingly important. The prime ministers of Australia, Fiji, New Zealand, Papua New Guinea, the Solomon Islands and Vanuatu have agreed to work towards a common code of conduct for logging and log exports from indigenous forests. Forestry activities are also significant in other regional groupings, such as the European Union, the Amazon Cooperation Treaty and the Southern Africa Development Community (SADC).

81. Under the Helsinki process, which originated from the Second Ministerial Conference on the Protection of Forests in Europe, in June 1994 European countries adopted a list of six criteria and 27 indicators on forest health and vitality, productive biodiversity and protective functions, and the socio-economic dimensions of forestry. For non-European temperate and boreal forests, the search for criteria and indicators started with a workshop organized in October 1993 by the Conference on Security and Cooperation in Europe (the so-called Montreal process). The Intergovernmental Working Group on Forests (IWGF, the so-called Canada-Malaysia initiative) met twice in 1994 and addressed forest conservation; criteria and indicators; trade promotion and the environment; new approaches to finance and technology transfer in forestry; institutional linkages; people's participation; and cross-sectoral linkages. In preparation for the third session of the Commission on Sustainable Development, an initiative undertaken jointly by the Governments of India and the United Kingdom of Great Britain and Northern Ireland sponsored a workshop at which a format for national reports was adopted.

82. A precursor of the recent work on criteria and indicators is early ITTO work on guidelines and criteria for the management of tropical forests. Well before UNCED, ITTO established a target for achieving SFM by 2000 and issued guidelines for the sustainable management of natural forests (1990) and planted forests (1993) as well as criteria for the measurement of sustainable tropical forest management (1992).

83. The large number of initiatives undertaken by various interest groups have resulted in duplication of efforts, dispersal of resources and difficulty in effectively exploiting the full outcome of each initiative. There is also a concern to ensure that (a) countries commit themselves firmly to achieving SFM and to applying agreed criteria and indicators; (b) the differing capacities of countries to fulfil the requirements of whatever standards are agreed upon under the initiatives is recognized; (c) time is allowed for criteria and indicators to be tested in practice before general adoption; (d) all agro-ecological regions and possibly all countries participate in the international debate; and (e) there is global harmonization of initiatives among all regions. 24/ To initiate the pursuit of harmonized objectives, FAO created an opportunity for a review of the various initiatives in February 1995 and at the March 1995 session of its Committee on Forestry and the associated meeting of ministers responsible for forestry.

2. Organizations and bodies of the United Nations system

84. The principal response to UNCED of the organizations and bodies of the United Nations system has been to review their programmes and to deliberately reorient their activities towards UNCED objectives, in particular by establishing new organizational units to focus on sustainable development. The post-UNCED roles of the World Bank and GEF in financing have been presented above. As also mentioned above, UNDP has launched Capacity 21 under which resources have been made available for capacity-building in forestry to supplement IPF allocations for forestry, which have always been important for technical assistance in this sector. FAO, as task manager, organized a consultation in March 1993 that led to the establishment of the E-mail group, a network that facilitates liaison among member intergovernmental and non-governmental organizations; some non-governmental organizations have called for its membership to be expanded and broadened. Like many other agencies, FAO has prepared a strategy for its involvement in the follow-up to UNCED and has distributed the strategy to member countries. FAO also convened a meeting of the bureaux of its regional forestry commissions to secure regional inputs into preparations for the present review of forestry, held a meeting of high-level external experts to chart future directions for forestry, and in February 1995 was to have convened meetings of the leaders of ongoing initiatives on establishing criteria and indicators for SFM. With UNEP funding, FAO is also organizing regional meetings in Africa, Asia and the Pacific, and Latin America and the Caribbean for a similar purpose, and will have convened, in connection with its Committee on Forestry in March 1995, meetings of the private sector, non-governmental organizations and ministers responsible for forestry to contribute to preparations for the present session of the Commission on Sustainable Development.

85. A feature of recent initiatives on the part of the United Nations system and other intergovernmental organizations is the effort that has been made to involve non-governmental interests. ITTO is reported to set no limit on the number of non-governmental organizations participating in formal sessions of its Council and has simplified procedures for them to do so. Non-governmental groups participate in FAO expert groups. FAO meetings of private industry and non-governmental organizations have been mentioned above. Furthermore, as also reported above, under TFAP the FAO Council has established a Consultative Group that will include representatives of all interest groups.

86. Many agencies, notably the World Bank, UNEP and FAO, are involved in or are initiating analytical work that is aimed at improving methodologies for the valuation of forest goods and services, thus promoting greater appreciation of their worth in land-use decision-making. This work benefits from close cooperation among non-governmental organizations, Governments and non-United Nations agencies, such as universities. The United Nations Educational, Scientific and Cultural Organization (UNESCO) has pursued its participatory approaches under the Man and the Biosphere (MAB) programme. The general aim is to seek out ways to reconcile nature conservation with human needs and to underpin the programme with international scientific cooperation. MAB reserves consist of a strictly protected core, a surrounding buffer area to accommodate more human activities and outlying transition areas. Biosphere reserves form a global network that as of mid-1994 comprised 323 sites in 82 countries, covering

an area of more than 211 million ha. In the interest of reducing wastage, FAO has prepared a draft model code of forest harvesting practice, primarily to serve as a basis for country-level codes of forest practice.

87. In recognition of the health dimensions of forestry and the close association of diseases such as malaria or typhus with forests or with deforestation, the World Health Organization (WHO) established a task force on environment and tropical diseases in 1993. In view of the association between the forest environment or the management of forests and malaria transmission, the results of future research should be considered in formulating national forestry action plans.

3. Organizations outside the United Nations system

88. Several initiatives involving international cooperation have been presented in sections II.C and II.D.2 above and need not be repeated here; official development assistance provided bilaterally by donors is covered in section II.D.1 above.

III. CONCLUSIONS AND PROPOSALS FOR ACTION

A. Future demands on forests

89. The need to sustain forests and to manage them for future generations is based on an appreciation of the growing demands on their services. Information available in an FAO study entitled "Agriculture: towards 2010" 25/ indicates that in the period between 1995 and 2010, the total land under crops will increase to 850 million ha, with most new expansion occurring in sub-Saharan Africa and Latin America. During the same period, about 85 million ha of forests are expected to be cleared for agriculture. The same study reports that, since 1961, the world production of industrial roundwood has increased by 50 per cent, production of wood-based panels by 600 per cent, and production of paper by 350 per cent, with production of fuelwood nearly doubling. Between 1990 and 2010, the consumption of all wood products is expected to continue growing, with rates ranging from 1.2 per cent per annum for fuelwood and charcoal to 3 per cent per annum for paper and 4.3 per cent per annum for panel products. There will also be growth, even if unquantified, in the demand for the non-wood forest products that are essential for rural societies, such as medicinal plants; for rural employment and income; for recreation based on forests and wildlife; and for the protective roles of forests. Forest gene pools will remain of crucial importance.

90. These trends are indicative of the pressures that forests can be expected to meet. Efforts to contain consumption levels and reduce waste can have some effect, but since consumption and the generation of waste are also largely driven by population growth, there are limits to the containment approach. It will be necessary to create additional forest resources and better manage existing ones to meet the growing demand, which will require sound decisions and early action to resolve current problems and put into practice the programmes established at UNCED.

91. Fundamental to ensuring a commitment to take action are (a) knowledge of the true value of the resources and the alternative resources that could be produced from the land, and (b) quantification of the implications of its alternative use, loss or degradation. Yet techniques for the valuation of forest goods and services are not yet able to provide solid justification for policy and investment decisions. The information base that is required to improve the effectiveness of action also remains weak: information on forest resources is still inadequate. For that reason, a key area that requires the attention of the Commission on Sustainable Development is the need for further work at the national and global levels on the valuation of forests and associated assessments of the state of and trends in the use of forest resources. In this regard, the recent FAO decision to publish biennial assessments of the state of forests will be useful.

92. To carry out such information tasks and maintain the strategic direction of the sector will require national institutions with enhanced capacities. Yet the sector faces an anomalous situation: although it has captured a central place in the development agenda, its public institutions are often among the weakest in public administrations, and they often fail to attract the degree of resources and political support that are essential for success or to influence the policies that govern competing sectors. They are also unable to either adequately facilitate the effective participation of non-governmental interests in the sustainable management of forests or provide assistance to non-governmental groups, such as community organizations interested in making a contribution.

93. It is also important for institutions to adapt to working through the interfaces that exist between forestry and other sectors, such as the sectors responsible for agriculture, biological diversity, energy and trade; this will call for the reform of institutions in all the sectors involved. In terms of land use, some form of clearing-house arrangements may well be needed in many countries to ensure that land-use changes are reviewed by all parties concerned before they are initiated.

B. Expectations, common goals and instances of serious disagreement

94. There is a sense of urgency among all the interest groups involved with forests. However, perceptions of what to expect from the present session of the Commission on Sustainable Development vary, partly due to a lack of clear information on the role of the Commission. Many Governments, particularly the Governments of timber-exporting countries, hope that the Commission can facilitate regaining a commitment to open-trade arrangements in major market countries in recognition of the efforts of timber-exporting countries to improve the environmental soundness of their forest-management practices. Some interest groups, particularly non-governmental organizations, feel that the primary goal of the Commission should be to help prepare a global strategy that will quickly halt and reverse the deforestation and degradation of the world's forests. They expect firm goals and timetables, with a clear allocation of responsibilities. Some interest groups expect the Commission to launch an independent assessment of the role of the principal multilateral specialized institutions working on

forests (FAO, ITTO, UNEP etc.), the role of the multilateral funding institutions that are active in forestry, and the role of various frameworks and conventions, with a view to recommending the actions that will be required to enhance coordination, to eliminate redundancies and, if necessary, to redefine those roles.

95. In order to enable the Commission to focus on areas that are not adequately covered by other international institutions or mechanisms, the matters drawn to its particular attention have been selected in view of their having one or several of the following attributes: (a) they are simultaneously of pressing concern to governmental, non-governmental and private-sector interest groups, and therefore cannot fully be addressed to the satisfaction of all three parties by any existing intergovernmental forum or mechanism; (b) they are matters whose high profile and/or urgency requires the attention of the Commission, and (c) they are UNCED priorities of a cross-sectoral nature.

96. All interest groups, without exception, endorse the goal of achieving SFM; they are, however, taking different paths towards it. The proposals of all groups would ultimately lead to the same goal of SFM, which involves achieving a balance between conservation and use of forests that does not damage their multiple ecosystem capacities and at the same time meets human development and social needs. Nevertheless, three years after UNCED, the deep convictions that interest groups in the sector hold concerning the kind of action that should be taken to fulfil this common goal do not fully coincide; in some cases, they remain markedly divergent.

97. The main ways in which interest-group perceptions differ are the following: (a) they do not all have the same perception of the meaning of "unimpaired" forest and attempts to establish the "natural state" of the forest as an alternative have not settled the problem; there is no universally accepted definition of sustainability in forestry; (b) interest groups cannot agree on establishing boundaries to sustainability: some groups seek to ensure sustainable management of all forests everywhere, while others do not believe that to be possible; and (c) timetables for achieving SFM vary considerably: the impression is given by some interest groups that SFM must be achieved immediately, while others envisage a more progressive transition.

98. These contrasting perceptions partly explain the lack of coherence in post-UNCED activity, as reflected in numerous sector meetings. High visibility has been given to intergovernmental processes, but non-governmental organizations and the private sector have also been active. Thus, much activity and debate has been confined to parallel forums that effectively isolate the three main constituencies: Governments, non-governmental organizations and the private sector.

99. In international affairs, the governmental function of decision-making requires that there be forums in which other parties must necessarily have non-principal status. Therefore, the approach taken by FAO, ITTO and other intergovernmental bodies to providing the opportunity for all non-governmental interests to meet among themselves and together in advance of governmental meetings, so as to discuss the controversial issues related to forests and arrive at an initial consensus on ideas and attitudes, should have the full

support of the Commission. Any formulas, forums or other mechanisms that are utilized should ensure that all three major interest groups feel equally at ease to discuss issues and to prepare a basis for full compromise and consensus. Consensuses secured in that way can then be formalized within existing intergovernmental structures.

C. Proposals for the consideration of the Commission on Sustainable Development: future action

100. In noting the efforts of Governments and all interest groups to implement the provisions of the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Development of All Types of Forests and Agenda 21, and their efforts to reflect those instruments in their policies, strategies and action programmes, the Commission on Sustainable Development may wish to encourage Governments and all interest groups to mobilize adequate resources for implementing the Authoritative Statement of Principles and Agenda 21. Given the relevance of forestry to other chapters of Agenda 21, the Commission may also wish to draw attention to the need for developments in those other sectors to be made compatible with efforts to achieve SFM, particularly in areas affecting land use, agriculture, desertification, biological diversity, climate change and energy.

101. In the interests of conservation, the Commission may wish to call for further efforts to be undertaken for the conservation of ecosystems and biological diversity, and for countries to contribute to achieving a system of protected areas that includes representative examples of all types of forests, as well as ecosystems and biological diversity in areas of sufficient size to be ecologically viable in the long term. The Commission may wish to note that proposals have been made by some non-governmental groups for establishing a protocol under the Convention on Biological Diversity to replace the existing Non-legally Binding Authoritative Statement of Principles. In taking a position, the Commission may wish to note that, while they are very important for the conservation of biodiversity, forests also serve other productive and social functions beyond biological diversity; in this connection, it may wish to consider the outcome of the meeting of ministers responsible for forestry held by FAO to discuss options for the evolution of the Authoritative Statement of Principles.

102. The Commission may wish to emphasize the fundamental importance of forests as a source of products and services that are vital to sustainable development. Thus, the first priority for action is the development of capabilities and capacities for sound policy formulation, decision-making and forest management. The Commission may wish to reaffirm its support for productive industry based on forests for its economic role as a source of sustainable livelihoods and prosperity, provided its activities are compatible with SFM objectives. While acknowledging the importance of forests for all mankind, the Commission may also wish to particularly highlight the need for all parties to ensure that conservation and development activities give central attention to the interests of indigenous people and other communities that are most directly dependent on forests.

103. In recognition of the particular importance of external factors for deforestation and the sustainability of forests, the Commission may wish to call for a commitment by all member States to establishing sound population policies; addressing poverty; ensuring that land-use and agricultural policies provide the basis for a better allocation of land between agriculture and forests, and do not put forests at unnecessary risk; and reducing all other threats to forests, such as industrial pollution. In lower-income countries, the Commission may wish to call for necessary policy adjustments to be made so as to enhance the productivity of agriculture and thus reduce the demand for clearing new land. Specific actions that the Commission may wish to consider are described below.

Matters of pressing concern to all member countries and interest groups

104. The Commission may wish to:

(a) In the interests of making the most rapid progress in achieving SFM, exhort all parties to maintain the momentum of UNCED and to promote the most rapid progress towards achieving the goals agreed at UNCED by reaffirming its call for the preparation and implementation of national forestry action plans (NFAPs), as well as for the allocation of additional human, financial and technological resources to support the coordinated and harmonized implementation of NFAPs in order to combat forest degradation and deforestation and to achieve SFM;

(b) Call upon all Governments and concerned intergovernmental organizations at the global and regional levels to continue to provide forums for dialogue in which Governments, non-governmental organizations and the commercial private sector, as the main interest groups, will all feel sufficiently motivated to secure an early agreement on the pressing issues that are currently the subject of divergent positions, namely agreeing on common attributes and a working definition of SFM, sustaining the momentum gained in the lead-up to the current session of the Commission by preparing prioritized proposals for concrete action, and setting clear targets and a calendar for implementing the Authoritative Statement of Principles and forestry elements of Agenda 21; proposing modalities for increasing cooperation among the interest groups supported by the guidelines; and securing an early convergence of the proliferation of international initiatives, both governmental and non-governmental. (At the international level, forums for such consultation, consensus-building and mutual confidence-building, serviced by appropriate United Nations bodies, should have an ad hoc informal nature. They should make recommendations for formalization through existing United Nations intergovernmental bodies, such as the FAO Committee on Forestry.);

(c) Request an appropriate organization or body in the United Nations system, working in close collaboration with other concerned international organizations and all interest groups, to promote agreement on a harmonized system of criteria and indicators for assessing progress towards achieving SFM, taking account of the different capacities of member countries and their sovereign rights over their forest resources;

(d) Call upon member countries to strengthen both official and unofficial institutions that are charged with the responsibility for safeguarding forests

in order to improve their visibility and stature and thus their ability to influence forestry and relevant non-forestry policies and attract the political and practical support essential for pursuing SFM.

Other matters whose high profile and/or urgency requires the attention of the Commission on Sustainable Development

105. The Commission may wish to:

(a) Request an appropriate organization or body within the United Nations system, working in close collaboration with other concerned international organizations and all interest groups, to explore what common ground exists for making further progress, if warranted, in the evolution of the Authoritative Statement of Principles towards a legally binding instrument, or to identify other options and report to the Commission at its next session or through existing FAO committees. The work should reflect a recognition of the linkages between forest issues and issues involving, inter alia, biodiversity, agriculture and climate change, and should build upon the outcome of debate on this topic at the FAO meeting of ministers responsible for forestry (March 1995);

(b) With a view to enhancing available information on forests, appeal to all member countries, the donor community and appropriate international organizations to (a) accelerate ongoing work on the development of methodologies for the valuation of forest goods and services in order to provide sounder justification for public and political support for the sustainable management of forests; (b) support initiatives of member States and international organizations, such as FAO, to harmonize programmes for the continuous assessment of forest resources, including the development of quality indicators, and programmes on the use of data in public information and for policy and strategy formulation; and (c) give priority to analytical work on the forestry sector in a multisectoral context in order to facilitate policy formulation and decision-making;

(c) Under the aegis of a group of multilateral lending institutions active in forestry and in close collaboration with relevant specialized agencies, donor agencies, member Governments of main beneficiary countries and the private sector, study existing and new mechanisms for improving procedures and enhancing the coordination of international cooperation so as to help member States prepare and implement forestry investment projects, and enhance funding flows for SFM, with particular emphasis on private-sector and domestic resources, including sectoral revenues; propose ways to improve the distribution of external funding among beneficiary countries; develop provisional guidelines; and propose arrangements for improving the information available on all sources of funding for the forestry sector.

UNCED priorities of a cross-sectoral nature

106. The Commission may wish to:

(a) Establish a group of eminent persons selected through a consultative process and balanced between developed and developing countries, as well as

equitably representing all interest groups and the forest products trade, with a mandate to chart a path towards steady progress in international trade in forest products from all types of forests based on sustainably managed forests and the application of criteria and indicators to measure and monitor such management. The group should work under the aegis of appropriate international organizations, such as FAO, ITTO and the World Trade Organization (WTO), and should collaborate closely with other concerned international organizations and interest groups. The group should also benefit from the work of appropriate United Nations initiatives, such as the Ad Hoc Working Group on Trade, Environment and Development of the United Nations Conference on Trade and Development (UNCTAD) and the WTO Committee on Trade and Environment;

(b) Call for the international community to increase its support for capacity-building of Governments and other interest groups in the area of forestry, as well as its support for technology transfer and development, including efforts to integrate modern science with indigenous knowledge and practice.

Notes

1/ United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, vol. I, Resolutions Adopted by the Conference (United Nations publication, Sales No. E.93.I.8 and corrigendum), resolution 1, annex II.

2/ Ibid., annex III.

3/ See United Nations Environment Programme, Convention on Biological Diversity (Environmental Law and Institutions Programme Activity Centre), June 1992.

4/ Comprising 12 United Nations bodies, three non-governmental organizations and two regional development banks; the remainder fall into other categories.

5/ There are five principal reports on the 1990 Forest Resources Assessment: (a) "The forest resources of the temperate zones: the United Nations/ECE/FAO 1990 Forest Resources Assessment", vol. 1, "General forest resource information" (ECE/TIM/62) and vol. 2, "Benefits and functions of forests" (ECE/TIM/62, vol. II); (b) "Forest Resources Assessment 1990: tropical countries", FAO Forestry Paper, No. 112 (Rome, 1993); (c) "Forest Resources Assessment 1990: country briefs (tropical countries)" (FAO, 1994); (d) "Forest Resources Assessment 1990: non-tropical developing countries", FAO Miscellaneous Paper (FAO, under preparation); (e) "Forest Resources Assessment 1990: global synthesis" (FAO, under preparation).

6/ "Primary" forests are also often termed "old-growth" forests.

7/ The State of Food and Agriculture 1994, special chapter on forestry (Rome, FAO, 1994).

8/ FAO working documents, citing (a) The Tropical Forestry Action Plan (FAO, UNDP, the World Bank and the World Resources Institute, 1987 and (b) N. Myers, "Conversion rates in tropical moist forests", in Ecosystems of the World, vol. 14a, Tropical Rainforest Ecosystems: Structure and Function (Elsevier Scientific Publishing Company).

9/ "Forest Resources Assessment 1990: tropical countries", FAO Forestry Paper, No. 112 (Rome, 1993).

10/ See Greenpeace International submission to the third session of the Commission on Sustainable Development, annex 3, "Some statistics on forest and biodiversity decline" (Amsterdam).

11/ Our Common Future (World Commission on Environment and Development and Oxford University Press, 1987).

12/ "Forest Resources Assessment 1990: tropical countries", FAO Forestry Paper, No. 112 (Rome, 1993).

13/ Signatories to all or most of the resolutions are Albania, Belarus, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Russian Federation, the Slovak Republic, Slovenia, Ukraine and Yugoslavia.

14/ Four main certification schemes are reported to be currently operational covering an estimated 1.5 million cubic metres (m^3) of timber and timber products in 1993, which represents less than 1 per cent of world trade in industrial roundwood, sawn wood, plywood and veneer.

15/ Information on the commercial private sector has been particularly scarce.

16/ To ensure a level playing field in the market, other commodities that compete with forest products should also be priced on a similar basis.

17/ A key problem in reporting on financing related to financing for forests is the lack of consolidated information available from any one agency (even among concerned United Nations agencies) on both international official and private-sector funding, as well as on domestic investment.

18/ Committee on Forestry Development in the Tropics, tenth session, "The review of international cooperation in tropical forestry" (FO:FDT/91/3) (Rome, FAO, 1991).

19/ Percentage shares of the requirements contained in Agenda 21, chap. 11, compared to actual (World Bank) lending are: institutions 15 (23); forest protection/restoration 65 (64.8); utilization 16 (10.6); and assessments 4 (2.5).

20/ Asia-Pacific Forestry Commission, "Report of the in-session seminar on forestry investment in Asia and the Pacific" (FO:MISC/93/14) (Rome, FAO, August 1994).

21/ Committee on Forestry Development in the Tropics, tenth session, "The review of international cooperation in tropical forestry" (FO:FDT/91/3) (Rome, FAO, 1991).

22/ Calculated from "Tropical Forests Action Programme: stock-taking" document issued by the TFAP Coordinating Unit (Rome, FAO, November 1994).

23/ An informal association of the forestry advisers to the main bilateral donors and multilateral lenders for forestry; the Group was initially created to service TFAP.

24/ There are also important technical issues, such as how to accommodate, in international trade, forest products that are harvested during land-clearing with subsequent change to other land use: such products could not be certified as sustainably sourced, but if their use was disallowed harvest pressure would shift to remaining forests or the potential harvest would be wasted.

25/ Twenty-seventh FAO Conference (C93/24) (Rome, November 1993).